NSW ICAC EXHIBIT

JBS&G

Riverstone Parade Development Pty Ltd

Additional Environmental Site Assessment

Lot 211 DP830505
Riverstone Parade, Riverstone, NSW

20 June 2016

50648/104287 (rev A)

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Table of Contents

Abbreviations v

Executive Summary vi

1. Introduction 1
   - 1.1 Background 1
   - 1.2 Objectives 1
   - 1.3 Scope of Works 2

2. Site Identification and Setting 3
   - 2.1 Site Description 3
   - 2.2 Surrounding Land-use 3
   - 2.3 Topography 4
   - 2.4 Geology 4
   - 2.5 Hydrogeology 4
   - 2.6 Site History 4
   - 2.7 Previous Assessments 5

3. Potential for Contamination 6

4. Sampling and Analysis Plan 7
   - 4.1 Data Quality Objectives 7
     - 4.1.1 State the Problem 7
     - 4.1.2 Identify the Decision 7
     - 4.1.3 Identify Inputs to the Decision 7
     - 4.1.4 Define the Study Boundaries 7
     - 4.1.5 Develop a Decision Rule 8
     - 4.1.6 Specify Limits of Decision Error 9
     - 4.1.7 Optimise the Design for Obtaining Data 9
   - 4.2 Detailed Site Inspection 10
   - 4.3 Soil Sampling Methodology 10
     - 4.3.1 Assessment of Broad Acre Areas 10
     - 4.3.2 Assessment of Area of Illegal Fill 11
   - 4.4 Analytical Schedule 11
   - 4.5 Data Reliability 11

5. Assessment Criteria 14
   - 5.1 Regulatory Guidelines 14
   - 5.2 Soil Criteria 14
     - 5.2.1 Site Specific Asbestos Criteria 15

6. Quality Assurance / Quality Control 17

6.1 Precision 17
6.2 Accuracy 18
6.3 Comparability 19
6.4 Completeness 19
6.5 Assessment of QA/QC 19
7. Results 20
7.1 Site Inspection 20
7.2 Broad Acre Area 20
7.2.1 Field Observations 20
7.2.2 Soil Analytical Results 20
7.3 Illegal Fill Area 21
7.3.1 Field Observations 21
7.3.2 Soil Analytical Results 21
8. Discussion 24
8.1 Broad Acre Area 24
8.2 Illegally Imported Fill 24
8.2.1 Exceedances of Chemical Criteria 24
8.2.2 Anthropogenic Inclusions 24
8.2.3 Exceedances of Asbestos Criteria 24
8.3 Assessment Against the Decision Rule 25
8.4 Assessment of Compliance with Limits in Decision Error 25
9. Conclusions 27
10. Limitations 28

List of Figures

Figure 1 Site Location
Figure 2 Site Layout
Figure 3 Sample Locations – Broad Acre Area
Figure 4 Sample Locations – Illegally Imported Fill

Appendices

Appendix A Summary Tables
Appendix B Test Pit Logs
Appendix C QA/QC RPD Calculations
Appendix D Laboratory Reports and Chain of Custody Documentation
Appendix E Pro UCL Calculations

Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AHD	Australian Height Datum
As	Arsenic
bgs	below ground surface
Cd	Cadmium
Cr	Chromium
Cu	Copper
BTEX	Benzene, toluene, ethylbenzene and xylenes
B(a)P	Benzo(a)pyrene
DEC	NSW Department of Environment and Conservation
DECCW	NSW Department of Environment, Climate Change and Water
DP	Deposited Plan
DQI	Data quality indicator
DQOs	Data Quality Objectives
EPA	NSW Environment Protection Authority
ha	Hectare
Hg	Mercury
HIL	Health based investigation level
JBS&G	JBS&G Australia Pty Ltd
LOR	Limit of Reporting
Ni	Nickel
OCP	Organochlorine Pesticide
OEH	Office of Environment and Heritage
PAHs	Polycyclic aromatic hydrocarbons
Pb	Lead
PCB	Polychlorinated Biphyenyls
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan
RWP	Remedial Work Plan
RPD	Relative Percentage Difference
SAQP	Sampling, Analysis and Quality Plan
TPH	Total Petroleum Hydrocarbons
TPH	Total Petroleum Hydrocarbons (C_6-C_9 and C_{10}-C_{36})
Zn	Zinc

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Riverstone Parade Pty Ltd (RP) to provide environmental consultancy works as part of the proposed bulk earthworks and ground contouring at the north eastern portion of Lot 211 DP830505 as shown on **Figure 1**. The address of the site is reported as 36 Garfield Rd West Riverstone, however the location of the works is better consistent with an address of the intersection of Riverstone Pde and Bandon Rd, Vineyard.

The scope of the works a detailed site inspection to identify areas of potential ground disturbance or filling as well as any asbestos containing materials (ACM) present on the surface, a site wide soil assessment including sampling from test pits in a grid pattern across the site (the broad acre area) and a targeted assessment of the fill material stockpiled in the north western corner of the site.

Based on the data presented herein, and in accordance with the Limitations in **Section 10**, the following conclusions are made:

- Soils in the broad acre area were reported to be suitable to remain on site for the commercial/industrial land use;
- Within the fill stockpiled material there were exceedances of the ecological criteria for zinc, cooper and benzo(a)pyrene, however this is determined not to adversely impact ecological receptors due to the likelihood of concrete / hardstand covered surface with the proposed commercial / industrial development of the site and associated opportunity to use these soils underlying hardstand;
- Within the fill stockpiled material ACM contamination is present (as bonded and friable material/free asbestos). Bonded ACM was present is excess quantities in some localised areas and friable asbestos / free asbestos material was not considered to be present at a level, across the extent of the site soils, that posed a potential health risk to future commercial/industrial site users; and
- Layers of primarily anthropogenic material were as present in some locations in the stockpiles were determined to be aesthetically unsuitable for uncontrolled use on the site.

On the basis of the assessment it is recommended:

- The stockpiled soils are spread and areas of bonded ACM (ie. fibre cement sheet fragments) are removed by hand picking;
- An appropriate asbestos environmental, health and safety management plan and asbestos register is completed as outlined in SWA 2011/NSW WorkCover 2011 during all remediation and construction works in proximity of the stockpiled / fill soils;
- Fill material present in the stockpiles is not appropriate to be used as growing media; and
- Anthropogenic material is placed at depth if determined to be geotechnically suitable by the client.

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Riverstone Parade Pty Ltd (RP) to provide environmental consultancy works as part of the proposed bulk earthworks and ground contouring at the north eastern portion of Lot 211 DP830505 as shown on **Figure 1**. The address of the site is reported as 36 Garfield Rd West Riverstone, however the location of the works is better consistent with an address of the intersection of Riverstone Pde and Bandon Rd, Vineyard.

Works proposed at the site can be broadly described as earthworks and ground contouring for the purposes of preparing the site to a condition suitable for a proposed commercial / industrial and open space development. The proposed extent of the site is shown on **Figures 1** and **2**.

A Contamination Assessment and Remedial Action Plan (CES 2014[1]) has been previously prepared for the broader Riverstone West Precinct site. CES (2014) identified a limited extent of asbestos based contamination present at the surface of the site and further identified a potential for buried animal waste based contamination on the site. It was noted that the sampling was conducted on a targeted basis specifically to investigate the areas of animal waste burial pits with only a limited number of sampling locations carried out in the non-burial areas, which present the vast expanse of the natural ground surface of the broader Riverstone West Precinct site. In addition, no sampling locations were conducted within the area of the current subject site referred to as the Vineyard Pad and the subject of Blacktown City Council DA15-1001.

JBS&G subsequently prepared a Remedial Work Plan (RWP[2]) to control the remediation and validation of site contamination identified in CES (2014). The objective of the RWP is to ensure that fill material imported to the site is environmentally suitable, and any potential additional contamination identified during site earthworks is identified to facilitate remediation and validation.

In addition to the scope of works required by the RWP, sampling and analysis is required prior to remedial works in order to characterise the existing soil quality and provide adequate coverage within the area proposed to undergo earthworks (i.e. the subject site). JBS&G prepared a Sampling, Analysis and Quality Plan (SAQP) (JBS&G 2016b[3]) for the additional environmental site assessment in order to achieve this objective. This report details the additional investigations undertaken to characterise the existing soil quality and to further assess the suitability of an area of illegally imported fill that was stockpiled on the site. The client has advised that where possible it was preferred to use the illegally imported fill as fill material on the site. The illegally imported fill is noted to be the subject of a separate investigation being undertaken by the NSW EPA.

The assessment has been undertaken in accordance with guidelines made or approved by the NSW EPA.

1.2 Objectives

The objective of this document is to present results of the additional environmental site assessment to further characterise the contamination status of the site. Specifically, the soils on site require further characterisation in order to supplement the findings from CES (2014). The findings and test results can then be considered for any additional remedial works that may be necessary to render the site suitable for commercial / industrial use.

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1 *Contamination Assessment & Remedial Action Plan,* Riverstone West Precinct, Riverstone, NSW, Stage 1 Earthworks, March 2014 (CES 2014).

2 *Remedial Works Plan*, Lot 211 DP830505, Riverstone Pde, Riverstone, March 2016 (JBS&G 2016a).

3 Additional Environmental Site Assessment – SAQP, Riverstone Parade, Riverstone, 27 April 2016 (JBS&G 2016b)

1.3 Scope of Works

The scope of work comprised:

- A detailed site inspection to identify areas of potential ground disturbance or filling as well as any asbestos containing materials (ACM) present on the surface;
- A site wide soil assessment including sampling from test pits in a grid pattern across the site;
- A targeted assessment of the fill material stockpiled in the north western corner of the site as understood to have been illegally dumped on the site;
- An assessment of data reliability by a quality assurance/ quality control program; and
- Preparation of this factual report.

2. Site Identification and Setting

The Riverstone West Precinct is located off Garfield Road West in Riverstone, NSW and is irregularly shaped with an area of 235 hectares. The Australian Map Grid co-ordinates of the approximate centre of the site are 300925 mE, 6272750 mN (MGA 56). The Riverstone West Precinct includes the Sydney Water Sewerage Treatment Plant and the Transgrid Substation, both located at the northern end of the Precinct; it occupies land on the western side of the Blacktown-Richmond Railway Line and extends from Bandon Road and Vineyard Station in the north, to Garfield Road and Riverstone Station in the south.

The area which is the subject of this investigation is the north-western portion of the Riverstone West Precinct which lies to the north of the former Riverstone Meatworks building complex, and in proximity of the Vineyard Train Station.

The proposed development area is estimated as 11.4 hectares (see **Figure 1** and **2**). It is noted that the proposed investigation is within the extent of development approval 15-1001, of note within the extent of the site area is illegally dumped fill as present at the north-western portion of the site. The extent of the illegally dumped fill is shown on **Figure 2**.

Table 2.1: Summary Site Details

Address	36 Garfield Rd West Riverstone
DP	Part Lot 211 DP830505
Approximate co-ordinates (MGA 56) of the centre of the site	Easting: 300925 Northing: 6272750
Area (ha)	Total site area approximately 11.4 ha
Local Government Authority	Blacktown City Council
Previous Land-use	Meatworks facility
Proposed Land-use	Commercial/Industrial

2.1 Site Description

The site is characterised as consisting of former grazing land as affiliated with the former Riverstone Meatworks. The majority of the site is characterised as being grassed across the site area with some isolated eucalypt trees present. Site features were generally restricted to some tracks and recently excavated/dug out dams.

The area at the north-east of the site had been recently cleared and levelled, and covered with gravels in some areas. Shipping containers were also present on this part of the site, in preparation for the site earthworks.

Dumped materials, generally soils with construction / building wastes, were present on the north west portion of the site. These materials are understood to have been illegally dumped and are described in more detail throughout the assessment.

2.2 Surrounding Land-use

The surrounding land uses have been identified as follows:

- North – The site is bound to the north by Bandon Rd and low density rural properties beyond.
- East – A railway line extends along the eastern boundary of the site, with Vineyard Station situated to the north east of the site. Riverstone Parade is located further east with low density properties located beyond.
- South – The greater area of the Riverstone West Precinct is located to the south of the site and largely comprises of cleared land.
- West – The Riverstone Sewage Processing Plant is located to the west of the subject site.

2.3 Topography

A review of topographic information (SIX Maps[4]) indicated the site is approximately 30 m Australian Height Datum (AHD) with the surrounding land sloping to the northwest. During site walkover, the site was observed to have a variable topography with localised slopes into gullies and a general site slope to Eastern Creek at the west.

2.4 Geology

Review of the 1:100 000 Penrith Geological Series Sheet (9030 1991) indicates that the site is underlain by Bringelly Shale of Middle Triassic Age.

A review of the Penrith Soil Landscape Series Sheet (9030, 1:100,000 1966) map indicates that the site is predominantly situated on fluvial soils of the Berkshire Park Landscape Group. These soils comprise weakly pedal orange heavy clays and clayey sands.

Limitations of this landscape group include very high wind erosion hazard if cleared, gully, sheet and rill erosion on dissected areas, waterlogging, impermeable subsoils and low fertility hazard.

2.5 Hydrogeology

Registered groundwater bore information obtained from the NSW Office of Water Database completed on the 26 April 2016 is included in JBS&G (2016b). A review of the registered bore information indicated that six bores are located within a 1.5 km radius of the site. The details of those bores and are summarised in **Table 2.2**.

Table 2.2: Summary of Groundwater Bore Information

Groundwater Bore Number	Location (approximate distance from central portion of site)	Intended Purpose	Drilled Depth (m bgl)	Standing Water Level (m bgl)	Water Bearing Zones (m bgl)	Completion Date
GW028957	1.5 km north west	Monitoring	15.20	7.90	N/R	1/1/1968
GW102747	1.5 km south east	Monitoring	12.0	N/R	N/R	11/10/1999
GW102748	1.5 km south east	Monitoring	6.50	N/R	N/R	12/10/1999
GW102750	1.5 km south east	Monitoring	6.50	N/R	N/R	12/10/1999
GW102753	1.5 km south east	Monitoring	14.20	N/R	N/R	15/10/1999
GW102754	1.5 km south east	Monitoring	14.15	N/R	N/R	14/10/1999

Based on bore data from bores within a similar setting to the site, groundwater at the site is anticipated to be relatively deep (> 7 m) and located within more permeable zones within shale bedrock. There may be some shallow perched groundwater present within residual clay soils at the bedrock interface. Based on local topography, groundwater flow is anticipated to be to the west and northwest, in line with the local topography and towards Eastern Creek.

2.6 Site History

From review of CES (2014) the site has historically been used as a meatworks facility undertaking cattle holding, slaughter and carcass processing. The portion of the overall meatworks facility where these assessments have been undertaken has been used for grazing only.

More recently it is understood that a substantial quantity of soils and associated building / demolition wastes have been illegally dumped at the north-western portion of the site. Prior to this dumping, the site area is understood to have been cut and filled for the purpose of creating a level pad. The imported fill has then typically been spread to raise the level of the pad.

[4] Spatial Information Exchange Viewer Maps (SIX Maps) http://maps.six.nsw.gov.au/, Accessed on 25 April 2016.

2.7 Previous Assessments

JBS&G has been provided with *Contamination Assessment & Remedial Action Plan, Riverstone West Precinct, Riverstone, NSW, Stage 1 Earthworks*, 19 March 2014, Consulting Earth Scientists (CES 2014) only as relevant to previous contamination investigations undertaken at the site.

3. Potential for Contamination

From review of CES (2014), several contamination issues were identified for the broader Riverstone West Precinct site. They included elevated levels of arsenic and total petroleum hydrocarbons (TPH) in fill where historically present on the site. In addition, significant quantities of animal carcasses were identified in buried pits underlying the site. Asbestos containing materials (ACM) as fragments of bonded cement sheeting were also observed on the ground surface of the site. The source of the contamination issues was considered to be the historical use of the site as a meatworks facility undertaking cattle holding, slaughter and carcass processing along with burial of the associated waste products.

Although the contamination issues identified in CES (2014) were outside the area of the current subject site, similar conditions may exist within the extent of the subject site owing to the same historical site use. Therefore, there is the potential for soils to be impacted with heavy metals, TPH and asbestos. There is also the potential for buried animal remains to be present on site, although if present, it is expected to be highly localised within burial pits as per the findings in CES (2014).

Based on the previous remediation and validation works conducted across the Riverstone West Precinct site, it is considered unlikely groundwater has been impacted. CES (2014) has not reported any impacts to groundwater being present.

Separate to the historical assessment of potential contamination sources as undertaken on the site, a range of potential contaminants are associated with the illegally dumped fill material at the north-western portion of the site. These would relate to contamination processes as associated with source sites where the soils have been removed from. Evidence of a range of anthropogenic materials / building demolition wastes were also present in these materials.

4. Sampling and Analysis Plan

4.1 Data Quality Objectives

Data Quality Objectives (DQOs) have been established for the assessment works, as described in the following sections.

4.1.1 State the Problem

A potential for contamination has been identified for the site as per **Section 3**. No soil sampling and analysis has previously been completed on the site.

4.1.2 Identify the Decision

Based on the decision making process for assessing urban redevelopment sites detailed in DEC (2006), the following decisions must be made:

- Are there any unacceptable risks to likely future onsite receptors from impacted soils during development?
- 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 the illegally imported fill materials as present at the north-west of the site suitable from an environmental contamination perspective for a future use on the site as filling material?
- Are there any aesthetic concerns in fill soils present at the site?
- Is there any evidence of, or potential for, migration of contaminants off-site?
- Is a site management strategy required?

4.1.3 Identify Inputs to the Decision

Inputs to the decisions are:

- 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 project objectives, as defined by assessment criteria nominated in CES (2014);
- Inclusions of consideration of site specific factors in setting any exposure based adjustments to assessment criteria adopted in CES (2014) or otherwise published in NEPC (2013);
- Interpretation of environmental data to infer the nature and extent of contamination; and
- 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 established data quality indicators (DQIs).

4.1.4 Define the Study Boundaries

The lateral extent of the investigation is limited to the area of the proposed development under Blacktown City Council DA 15-100 and is shown on **Figures 1** and **2**.

The vertical extent of the investigation was 0.3 m into natural soils.

Data is representative of the timing and duration of the investigation.

4.1.5 Develop a Decision Rule

The decision rules adopted to answer the decisions identified in **Section 4.1.2** are summarised in **Table 4.1**.

Table 4.1: Summary of Decision Rules

Decision Required to be made	Decision Rule
1. Are there any unacceptable risks to likely future onsite receptors from impacted soils during development?	The nature and extent of soil impacts will be assessed, and soil analytical data will be compared against EPA endorsed criteria. Statistical analyses of the data in accordance with relevant guidance documents will be undertaken, if appropriate, to facilitate the decisions. The following statistical criteria will be adopted with respect to soils: Either: the reported concentrations are all below the site criteria; Or: 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. And: the 95% upper confidence limit (UCL[5]) 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 surface soils exceeded published background concentrations (NEPC 2013), the decision is Yes. Otherwise the decision is No.
3. Are there any chemical mixtures	Are there more than one group of contaminants present which increase the risk of harm? If there is, the decision is Yes. Otherwise, the decision is No.
4. Are illegally imported fill materials environmentally suitable to be retained and re-used on site?	Are contaminants present within natural soils at concentrations exceeding EPA endorsed criteria? If yes, the answer to the decision is Yes. Otherwise, the answer to the decision is No.
5. Are there any aesthetics issues in fill soils at the site?	If there are any unacceptable odours, anthropogenic materials or staining the answer to the decision is Yes. Otherwise, the answer to the decision is No.
6. Is there any evidence of, or potential for, migration of contaminants off-site?	Are contaminants present within natural soils at concentrations exceeding EPA endorsed criteria? If yes, the answer to the decision is Yes. Otherwise, the answer to the decision is No.
7. Is a site 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.

Statistical analyses of the data will be undertaken, if required, in accordance with relevant guidance documents. The following statistical criteria shall be adopted:

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

The 250% maximum / 50% standard deviation based decision rules have not been considered to be applicable to the assessment of the stockpiled fill soils. Where these soils are deemed suitable to be

[5] Sampling Design Guidelines (NSW EPA, 1995).

retained on the site, they will require to be substantially reworked / reprocessed prior to emplacement with the proposed site filling scheme. This would cause impact to be even distributed and dictates that constituent levels are only appropriately characterised by the 95 % UCL_{avg}.

4.1.6 Specify Limits of Decision Error

Environmental data generated for the site needs to be sufficiently reliable to support decision making in relation to the site status. Data reliability has been determined by an assessment of quality assurance / quality control (QA/QC) for the purposes of determining data quality indicators (DQIs).

Guidance for acceptable limits on decision errors is provided in AS4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds'. Two types of error are nominated in AS4482.1 including:

A. Deciding that the site is acceptable when it actually is not; and

B. Deciding that the site is unacceptable when it is.

It is nominated in AS4482.1 that limits should be set on these, with a 5% probability set for A type errors and 20% probability set for B type errors. The number of samples required to be collected to allow these limits on decision errors to be met is calculated using the following relationship:

$n = 6.2\ \sigma^2 / (Cs - \mu)^2$

where:

- n – number of sample needed
- 6.2 – factor derived from 0.05 A risk and 0.2 B risk
- σ – estimated standard deviation of contaminants concentration (mg/kg where a soil validation data set is formed)
- μ – average concentration of contaminant (mg/kg or mg/l where a soil validation data set is formed)
- Cs – acceptable limit (mg/kg or mg/l where a soil validation data set is formed)

The application of this relationship presumes a grid based sampling pattern as having been undertaken across the site.

4.1.7 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 the history of the site and project objectives, a systematic sampling program is considered the most appropriate for providing adequate site coverage and characterising site soils.

Potential contaminants in **Section 3** are anticipated to be either highly localised in extent (i.e. potential buried animal wastes, demolition wastes) or widespread across the assessment area. NSW EPA (1995) 'Sampling Design Guidelines' provides some guidance for the design of sampling programs. To this extent, a minimum extent of potential impact is required to be identified. For the case of the proposed development, the client advised a minimum future sub-division size of 4,000 m^2 to be adopted.

For an area of 4,000 m^2, an equivalent radius of 36 m is estimated. Adopting a factor consistent with the limits of decision error in **Section 4.1.6**, a distance between sampling points of 61 m is calculated. Sampling of an 95,000 m^2 (the site area excluding the area of fill emplacement) site on the basis of a 61 m sampling grid will require a total of 26 sample locations.

These samples have been placed on a general grid basis. However, noting the potential for localised impact, an initial detailed site inspection was undertaken and sample locations targeted to areas of potential ground disturbance/filling with the particular proximity of the grid based location.

4.2 Detailed Site Inspection

Prior to the collection of soil samples, a detailed site inspection was conducted to identify any locations or areas of potential ground disturbance or filling as well as any ACM that may be present on the ground surface. This was undertaken on a 20 m grid, whereby the site was traversed by an appropriately experienced Field Engineer both laterally and longitudinally. No locations of potential ground disturbance or ACM were identified.

4.3 Soil Sampling Methodology

4.3.1 Assessment of Broad Acre Areas

Soil sampling was conducted via the advancement of testpits by excavation with the use of a backhoe, at the nominated locations shown on **Figure 3**. Testpits were extended through fill material to a maximum depth of 0.3 m into natural material.

Soil samples were collected at 0-0.15 m, 0.5 m and every 1.0 m interval to a maximum depth of 0.3 m into natural materials (or prior refusal). Noting the general absence of fill materials on the site, each location was extended to a minimum depth of 1.0 m. Should physical evidence of gross contamination be 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. All testpit locations were recorded with a hand held trimble GPS.

Collected samples were immediately transferred to laboratory supplied sample jars. 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.

No ACM and/or animal wastes were observed in the broad acre area portion of the site. Further it is not considered that any significant areas of site filling were identified, apart from some minor areas where re-worked site sourced materials/soils were present. JBS&G note that not all soil samples collected were initially analysed. Selected samples based on investigation objectives were analysed in accordance with the analytical schedule (**Table 4.2**). However, all samples will remain at the primary laboratory for a period of two months. This will allow future analysis to be completed in the event that further information is required to characterise site conditions, provided that proposed analytes remain within technical holding times.

Field PID screening

Soil samples were screened during field works using a PID to assess the potential presence of VOCs. Samples obtained for PID screening were placed in a sealed plastic bag for approximately 5 minutes to equilibrate, prior to a PID being attached to the bag. Readings were then monitored for a period of approximately 30 seconds or until values stabilise and the stabilised/highest reading was recorded on the borehole logs. The PID was calibrated prior to the commencement of field works and then check readings was completed on a daily basis during the field program using suitable calibration gas. If required, the PID will be re-calibrated during the field program in accordance with manufacturer's instructions.

Decontamination

Prior to the commencement of sampling activities, non-disposable sampling equipment, including sampling trowel/knife was cleaned with a high pressure water/detergent spray, rinsed with water and then air dried. The equipment was then inspected to ensure that no soil, oil, debris or other

contaminants were apparent on the equipment prior to the commencement of works. Sampling equipment was subsequently decontaminated as required using the above process between each sampling location.

Duplicate and Triplicate Sample Preparation

Field soil duplicate and triplicate samples were obtained using the above sampling methods. Each sample was then divided laterally into three samples with minimal disturbance and placed in clean glass jars. Each sample was then labelled with a primary, duplicate or triplicate sample identification before being placed in the same chilled esky for transport to the laboratory.

4.3.2 Assessment of Area of Illegal Fill

As shown on **Figure 2**, the north western portion of the site has been subject to illegal filling. The total volume of material illegally imported to site was advised by the client to have been surveyed at 13,217 m^3. Consistent with waste minimisation objectives of the project and acknowledging a deficit of fill materials with the site development, it was proposed to assess this material for suitability for future use on-site.

The RWP (JBS&G 2016) presented a sampling plan for visible fill materials which requires a minimum sampling frequency of 1 per 100 m^3 and analysis for heavy metals, TPH, BTEX, PAHs, OCPS, PCBs and asbestos. This is noted to have been based on potentially small quantities of waste. Based on the larger quantity of material present, a revised rate of sampling to one sample per 250 m^3 (generally consistent with sampling and analysis rate of 1 sample per 400T as required by Excavated Natural Material and Recycled Fines exemptions) was adopted. This is equivalent to a total number of 53 samples being required to characterise the materials. All samples were submitted for analysis. However restricted analysis was undertaken for the less likely analytes including assessment for TRH, BTEX and PAHs at a frequency of 50% of samples, and OCPs and PCBs at a frequency of 25% of samples. All samples were assessed for heavy metals and asbestos. Observations of any visual evidence of organic contamination were used to assist selection of samples for organic analytes.

4.4 Analytical Schedule

JBS&G contracted Eurofins MGT (Eurofins) as the primary laboratory, with Envirolab Services (Envirolab) as the secondary laboratory. All laboratories were NATA registered for the required analyses. In addition, the laboratories are required to meet JBS&G's internal QA/QC requirements.

Table 4.2: Analytical Schedule

Media	Sampling Locations / Numbers	Sample Analyses (excluding QA/QC)
Soil	26 test pit locations	Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) – 13 samples PAHs – 6 samples TRH – 6 samples OCPs/OPPs – 6 samples PCBs – 6 samples Asbestos (500 ml) – 6 samples CEC and pH – 2 samples
Illegally Import Fill Stockpiles	53 Samples Total	Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) – 53 samples Asbestos (500 ml) – 53 samples PAHs – 27 samples TRH – 27 samples BTEX – 27 samples OCPs – 14 samples PCBs – 14 samples

4.5 Data Reliability

To assess the usability of the data prior to making decisions, the data was 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 and completeness (PARCC parameters), and are shown in **Table 4.3**.

- 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.

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 4.3: 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]
Laboratory duplicates	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%
Laboratory blank	1 per lab batch	<LOR
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 event where reusable	<LOR

Data Quality Objective	Frequency	Data Quality Indicator
	sampling equipment used	
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

5. Assessment Criteria

5.1 Regulatory Guidelines

The investigation was undertaken with consideration to aspects of the following guidelines, as relevant:

- Contaminated Sites: Sampling Design Guidelines, NSW EPA, 1995 (EPA 1995);
- Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, NSW Office of Environment and Heritage, 2011 (OEH 2011);
- Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition, NSW EPA, 2006 (DEC 2006);
- National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 2013 (NEPC 2013); and
- Contaminated Sites: Guidelines on Duty to Report Contamination under the Contaminated Land Management Act 1997, NSW EPA, July 2015 (NSW EPA 2015).

5.2 Soil Criteria

Based on the proposed development, concentrations of contaminants in soil were compared against NEPC (2013) health-based investigation and screening levels (HILs and HSLs), and ecological investigation and screening levels (EILs and ESLs), for commercial/industrial land use, as outlined in **Table 5.1.**

The results of asbestos observations and analysis were assessed in general accordance with NEPC (2013) and WA DOH (2009) [6] guidance.

Table 5.1: Soil Assessment Criteria (all units in mg/kg)

Analytes	Limit of Reporting	Health Investigation Levels (HIL D)	Health-Screening Levels (HSL-D)1	EILs/ESLs Commercial and Industrial (Aged Fine soil)	Site Specific Criteria
METALS					
Arsenic	2	3,000	-	160[7]	
Cadmium	0.4	900	-	-	
Chromium (Total)[2]	5	3,600 (Cr VI)	-	670[7]	
Copper	5	240,000	-	120[7]	
Lead	5	1,500	-	1800[7]	
Nickel	5	6,000	-	150[7]	
Zinc	5	400,000	-	300[7]	
Mercury (inorganic)	0.05	730	-	-	
TRH					
F1 $C_6 – C_{10}$ Fraction	20	-	310	215	
F2 $>C_{10} – C_{16}$ Fraction	50	-	NL	170	
F3 $>C_{16} – C_{34}$ Fraction	100	-	-	2,500	
F4 $>C_{34} – C_{40}$ Fraction	100	-	-	6,600	
BTEX					
Benzene	0.1		4	95	
Toluene	0.1		NL	135	
Ethylbenzene	0.1		NL	185	
Total Xylenes	0.1		NL	95	
PAHs					
Naphthalene	0.5	-	NL	370	

[6] Guidelines for the Assessment Remediation and Management of Asbestos-Contaminated Sites in Western Australia May 2009. Western Australia Department of Health (DOH) (DOH 2009)

Analytes	Limit of Reporting	Health Investigation Levels (HIL D)	Health-Screening Levels (HSL-D)1	EILs/ESLs Commercial and Industrial (Aged Fine soil)	Site Specific Criteria
Benzo(a)pyrene	0.5	-	-	0.7	
Carcinogenic PAHs[4]	0.5	40	-	-	
Total PAH's	0.5	4,000	-	-	
OCPs					
DDT + DDD + DDE	0.3	3600	-	640 (DDT only)	
Aldrin + Dieldrin	0.2	45			
Chlordane	0.1	530			
Endosulfan	0.3	2,000			
Endrin	0.1	100			
Heptachlor	0.1	50			
HCB	0.1	80			
Methoxychlor	0.1	2500			
PCBs					
PCBs (total)	0.5	7		-	
ASBESTOS					
Bonded ACM	0.001 g/kg		0.05% (w/w)[5]	-	
FA and AF (friable asbestos)	Presence		0.001% (w/w)[5,6]	-	0.05% (w/w) – see discussion below
All forms of asbestos	Presence		No visible asbestos for surface soils	-	

1 Table1A(1) and Table 1A(3) NEPC (2013)
2 HIL for Cr VI. If total Cr exceeds HIL then further analysis for Cr VI will need to be completed to verify the nature of Cr at the site
3 Table 1B (6), ESLs for TPH fractions, Commercial/industrial (clay soil type, 0-1 m), NEPC (2013)
4 As B(a)P TEQ
5 500 mL sample
6 Not applicable to free fibres
7 EIL criteria to be determined based on tested cation exchange capacity (7.5 meq/100g), pH (4.7) and conductivity (46 µS/cm) and an assumed clay content (10%).

5.2.1 Site Specific Asbestos Criteria

The NEPC (2013) criteria (0.001 %w/w) for friable asbestos as used for the assessment of asbestos in soils is referenced directly from *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*, May 2009, Western Australian Department of Health (WA DoH 2009). A single criterion is presented for potential levels of free / friable asbestos in soils and is based on a residential exposure scenario and further is inclusive of a correction factor for the moisture content of Western Australian (WA) soils. Western Australian soils are reported to be dry which is estimated within the WA DoH (2009) document to cause an increase in the potential generation of asbestos fibres by an order of magnitude. This criterion was not considered appropriate for use on the Riverstone site which is going to be developed for a commercial / industrial purpose.

The source of the NEPC (2013) criteria of 0.001 % w/w is based on Dutch data, with soils of typical moisture of 10 % as reported in Annexes Circular on Target Values and Intervention Values for Soil Remediation, 4th February 2000, Netherlands Ministry for Housing, Spatial Planning, and the Environment (MHSPE 2000). By review of soil moisture contents reported by the primary and secondary laboratories (**Table B, Appendix A**) a range of soil moistures of 8.6 to 24% and an average soil moisture content of 15% has been reported for the stockpiled soils. The Dutch soils on which the NEPC (2013) criteria are based are reported to have a typical moisture content of 10%, significantly drier than the soils on the Riverstone site. This would cause the site soils to have reduced potential for asbestos fibre emissions, then both the Western Australian soil and the Dutch soils substantially being used as the basis for the asbestos fibre emission estimate. On this basis, the

order of magnitude reduction as adopted in WA DoH (2009) to account for increased moisture content of dry soils is not appropriate to be applied to soils on the the Riverstone site. This correction has been removed from the calculation of the criteria provided to WA DoH (2009) and NEPC (2013).

The WA DoH (2009) / NEPC (2013) criteria has further been provided as protective of potential residential exposures. The derivation of the asbestos criterion has considered a chronic exposure duration. Commercial / industrial workers are observed to have substantially shorter exposure durations than residential receptors. With this decreased exposure duration, the associated risk based criteria would be anticipated to increase, as consistent with bonded asbestos, and every other health based criterion provided to NEPC (2013). On the basis of the exposure adjustment factors adopted for asbestos in WA DoH (2009), an additional factor of five has been adopted to account for decreased duration of commercial / industrial exposures. On this basis, a risk based criterion of 0.05% (w/w) is derived for asbestos fibres / free asbestos / friable asbestos in soils.

6. Quality Assurance / Quality Control

Data quality indicators (DQIs) have been calculated as per the requirements of **Table 4.3** and are summarised in **Table 6.1** following. Laboratory reports are provided as **Appendix D**, with summarised QA/QC results presented in **Appendix C**.

Table 6.1: Summary of Quality Assurance / Quality Control Program

Data Quality Indicator	Frequency	Results Reported	DQI met
Precision			
Blind duplicates	4/66 samples	< LOR – 139 % RPD	Partial*
Split duplicates	4/66 samples	<LOR – 169 % RPD	Partial*
Laboratory duplicates	1/20 samples	< LOR – 160 % RPD	Partial*
Accuracy			
Surrogate spikes	All organic samples	52 – 127 % recovery	Partial*
Matrix spikes	1 per lab batch	71 – 130 % recovery	Yes
Laboratory control samples	1 per lab batch	70 – 129 % recovery	Yes
Laboratory blank	1 per lab batch	<LOR	Yes
Representativeness			
Trip spikes	1 per sample batch	76 – 109 % recovery	Yes
Trip blanks	1 per sample batch	< LOR	Yes
Rinsate	None	Deemed unnecessary due to disposable equipment used	Yes
Sampling appropriate for media and analytes	All samples	All sampling appropriate	Yes
Samples extracted and analysed within holding times	All samples	All samples extracted and analysed within holding times	Yes
Comparability			
Standard operating procedures used for sample collection and handling	All samples	Standard procedures for all sampling	Yes
Standard analytical methods used for all analyses	All samples	Standard analytical methods	Yes
Consistent field conditions, field staff and laboratories	All works	Single field staff and consistent field and laboratory conditions	Yes
Limits of reporting appropriate and consistent	All samples	LORs appropriate and generally consistent	Yes
Completeness			
Soil description, water quality parameters and COCs completed and appropriate	All samples	Field documentation and COC provided and completed	Yes
Appropriate documentation completed	All works	Documentation provided and completed	Yes
Satisfactory frequency and result for QC samples	All samples	See discussion below	Partial
Data from critical samples is considered valid	-	Critical samples valid	Yes

6.1 Precision

Blind Duplicates

The number of blind duplicate samples submitted for analysis of the COPCs met the DQI frequency for soil samples as summarised in **Table 6.1**. Tabulated results for duplicate analysis and calculated RPDs are provided in **Appendix C**. RPDs for soil were not within the nominated range of 0-50% for blind duplicate pairs. Variations in concentrations between the primary and duplicate samples are likely to be due to the heterogeneous natural of the soil. As a conservative measure, the highest values have been considered in the interpretation of data from this field program.

One asbestos blind duplicate sample was found to have asbestos present while the primary sample did not contain any identified asbestos, this is also attributed to the heterogeneous nature of the soil and the intermitted appearance of asbestos.

Split Duplicates

The number of split duplicate samples submitted for analysis of the COPCs met the DQI frequency for soil samples as summarised in **Table 6.1**. Tabulated results for split duplicate analysis and calculated RPDs are provided in **Appendix C**. Some RPDs for soil were not within the nominated range of 0-50% for split duplicate pairs. As discussed above, variations in concentrations between the primary, duplicate and triplicate samples are likely to be due to the difficulty of obtaining a homogeneous sample, as a result of the heterogeneous nature of the soil. As a conservative measure, the highest values have been considered in the interpretation of data from this field program.

Laboratory Duplicates

A sufficient number of laboratory duplicates were analysed by the laboratory for soil. RPDs for laboratory duplicates were generally within the DQI targets or laboratory acceptable ranges with the exception of a few samples. The RPD reported for these samples was noted by the laboratory to have padded Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of the report, which indicates for values less than ten times the LOR there is no RPD limit.

6.2 Accuracy

Surrogate Spikes

The number of surrogate spikes undertaken for the COPCs met the DQI frequency for the soil samples analysed at the primary laboratory as summarised in **Table 6.1**. Not all surrogate recoveries were within the JBS&G nominated range however all reported surrogate recoveries within the laboratories NATA accredited acceptable limits.

Matrix Spikes

All matrix spike recoveries for soil samples were compliant with the DQI target range and within the NATA acceptable limits for the analytical methods.

Laboratory Control Samples

All LCS recoveries for soil were compliant with the DQI target range and within the laboratories NATA acceptable limits for the analytical methods. Representativeness

Trip Spike

Three trip spikes were prepared and analysed with the soil batches. Spike recoveries were reported to be within the DQI range and/or the laboratory specified acceptable limits as per the method NATA accreditation.

Trip Blank & Equipment Blank

Three trip blank samples were prepared and analysed with the soil batches. Analyte levels were all below detection limits.

Rinsate Blank

No rinsate samples were completed during the field works as all equipment used during sampling was disposable (nitrile gloves).

Laboratory Blank

Results for all laboratory blanks for soil samples were less than the limit of reporting indicating the analytical methods were not contributing to the analytical values reported.

Sampling Appropriate for Media and Analytes

Soil sampling was undertaken by obtaining samples from a backhoe during test pit advancement. New disposable nitrile gloves were worn when obtaining each sample.

Holding Times

All analytes were undertaken with the holding times. Copies of laboratory sample receipts are included in **Appendix D**.

6.3 Comparability

Eurofins (primary laboratory) and Envirolab Services (secondary laboratory) were NATA accredited for all analytical methods used. The laboratories used similar analytical methods and the analytical data were comparable between laboratories as indicated by the results of the split duplicate analysis. Furthermore, all samples were collected by experienced JBS&G personnel in accordance with standard JBS&G sampling methods.

6.4 Completeness

Documentation

All laboratory documentation is complete and correct. Chain of custody documentation is provided with laboratory reports in **Appendix D**.

Frequency of QC Samples

The frequency of analysis of all QC samples was appropriate.

6.5 Assessment of QA/QC

The results of the field and laboratory QA/QC program indicates that the data obtained from the soil sampling undertaken by JBS&G for this investigation can be considered reliable and representative of soil conditions underlying the site at the time of sampling.

7. Results

7.1 Site Inspection

A detailed site inspection was completed on the 9 May 2016 by one of JBS&G's experienced field staff. Features noted during the site inspection are discussed below and depicted on **Figure 2**. The site was noted to generally consist of grassed / vegetated land with areas of surface gravels. The site was consistent with an anticipated historical use for grazing. Two areas had been excavated which created a pond like dam structure, at the time of the inspection, one of which contained water. The north western area of the site consisted of multiple soil stockpiles and one rubbish stockpile (including concrete rubble, bricks, metal scraps and other rubbish), two ACM fragments were observed on surface soils in this area (shown on **Figures 2, 3 and 4**). An additional stockpile of rubbish (including tyres, concrete rubble metal scraps and bricks) was observed on the northern boundary of site.

7.2 Broad Acre Area

Soil investigations for the broad acre area of the site were completed on the 10 May 2016.

7.2.1 Field Observations

Soil investigation locations are shown in **Figure 3**. All soil observations have been reported in bore logs provided in **Appendix B**. Soil samples were taken from a total of 26 test pits which were advanced to a depth of between 0.7 and 2.3 m bgs.

Observations of fill material on site included reworked clays and silty clays and crushed sandstone. The reworked clays were light brown/red/grey in colour, heterogeneous, medium plasticity, dry to moist, firm to stiff with the inclusion of gravels and tree roots. The crushed sandstone was observed on the ground surface (0.0 – 0.3 m bgs) in two locations in the mid-eastern portion of the site where tracks were present, consisting of crushed sandstone and sandstone cobbles, white/ cream, angular, loose and dry.

Natural material consisted of silty clays, clays, silts and clayey silts overlying a hard shale material. The shale varied from red/brown, white, brown orange, cream, grey with mottles of brown, red/brown, grey and cream, was dry and hard to very hard. The overlying material consisted of silty clays, clays, silts and clayey silts which were red/brown, brown, grey, orange brown, light grey and dark brown, homogeneous to heterogeneous, no to medium plasticity, soft to stiff and had some inclusions of gravels and roots.

There were no observations of asbestos containing material or odours at any locations. There was evidence of staining in one location (JB-23) due to the presence of tree roots. On this basis, the staining was considered to be consequent of natural sources and in way indicative of site contamination.

7.2.2 Soil Analytical Results

Laboratory analytical results obtained for the soil investigation as part of the assessment are presented in **Table A, Appendix A**. The corresponding laboratory certificates of analysis and chain of custody documentation are provided in **Appendix D**.

Selected samples collected were analysed for TPH/TRH, BTEX, PAHs, heavy metals, OCPs/OPPs, PCBs, asbestos, CEC and pH as per the analytical schedule in **Table 4.2**. Test pit locations used for soil sampling are shown on shown on **Figure 3**.

Concentrations of TRH/TPH, BTEX, PCBs, OCPs and OPPs for all samples analysed were reported below the limit of reporting (LOR).

Concentrations of heavy metals in all samples analysed from the site were less than the adopted assessment criteria, and are consistent with anticipated background levels of these constituents.

No asbestos was reported to be present in the samples submitted for analysis. No indications of asbestos impact were observed during the investigations.

7.3 Illegal Fill Area

Stockpile soil investigation works undertaken in the area of illegally dumped fill were completed on the 26 and 27 May and 1 June 2016.

7.3.1 Field Observations

Stockpile soil investigation locations are shown in **Figure 4**. All soil observations have been reported in the test pit logs provided as **Appendix B**. Soil samples were taken from a total of 46 test pits (STP01 – STP46) which were advanced to a total depth ranging between 0.7 m bgs and 5.3 m bgs.

Observations of fill material predominantly included silty clays, clays, gravelly clays, sandy clays, gravelly silty clays and silty clayey sand (or something similar). Materials ranged from, orange/red, orange/red brown, brown, dark brown, grey, black and dark grey, were generally heterogeneous, dry to saturated, low to medium plasticity, soft to hard with inclusions gravels, roots, grass and hay. Additional many of the sample included multiple anthropogenic inclusions, including but not limited to concrete rubble and slabs, timber, tiles, plastic, PVC, glass, wire, cables, rio, cooking pots, brick, textile materials, slag and asphalt. It is noted some test pit locations consisted of layers containing of predominantly anthropogenic materials and only trace amounts of soil content.

Asbestos containing materials (ACM) in the form of bonded ACM sheet fragments were observed in eight test pit locations (STP08, STP11, STP13, STP19, STP27, STP29, STP38 and STP42) as noted in the test pit logs provided as **Appendix B**. An asbestos quantification was not completed due to excessive amounts of fragments present at some locations. These soils will require remediation to remove fibre cement sheet fragments prior to being considered to be re-used on the site.

No odours or staining were observed in any test pit locations, with the exception of an organic odour in one location (STP38).

Consistent with the field observations made during the broad acre area assessment, as discussed in **Section 7.2.1**, natural material underlying the stockpiles consisted of silty clays, clays, silts and clayey silts overlying a hard shale material. The shale varied from red/brown, orange/brown, cream, grey with mottles of brown, red/brown, grey and cream, was dry and hard to very hard. The overlying material consisted of silty clays, clays, silts and clayey silts which were red/brown, brown, grey, orange brown, light grey and dark brown, homogeneous to heterogeneous, low to medium plasticity, soft to stiff and had some inclusions of gravels and roots.

7.3.2 Soil Analytical Results

Laboratory analytical results obtained for the soil investigation as part of the assessment are presented in **Table B, Appendix A**. The corresponding laboratory certificates of analysis and chain of custody documentation are provided in **Appendix D**.

Samples collected were analysed for TPH/TRH, BTEX, PAHs, heavy metals, OCPs, PCBs and asbestos, as per the analytical schedule in **Table 4.2**. Test pit locations used for soil sampling are shown on shown on **Figure 4**.

Concentrations for BTEX, PCBs and OCPs were reported below the limit of reporting for all samples analysed.

Concentrations of metals were reported as follows:

- Arsenic concentrations ranged from <2 mg/kg to 19 mg/kg (STP37_1.7), with no exceedances of the adopted criteria;
- Cadmium concentrations ranged from <0.4 mg/kg and 1 mg/kg (STP38_3.0), with no exceedance of the adopted criteria;

- Chromium concentrations ranged from <5 mg/kg to 40 mg/kg (STP42_0.25), with no exceedance of the adopted criteria;
- Copper concentrations ranged from <5 mg/kg to 600 mg/kg (STP21_2.0). The soil sample collected at STP21_2.0 exceeded the adopted ecological criteria (120 mg/kg);
- Lead concentrations ranged from <5 mg/kg to 350 mg/kg (STP17_1.0), with no exceedance of the adopted criteria;
- Mercury concentrations ranged from <0.05 mg/kg to 0.63 mg/kg (STP21_1.0), with no exceedances of the adopted criteria;
- Nickel concentrations ranged from 2 mg/kg to 10 mg/kg (STP10_1.0, STP12_2.0 and STP13_1.0), with no exceedances of the adopted criteria; and
- Zinc concentrations ranged from 5.1 to 430 mg/kg (STP21_2.0). The soil samples located at QS02 (duplicate of STP19_1.0) and STP21_2.0 exceeded the adopted ecological criteria (300 mg/kg).

Total recoverable hydrocarbon (TRH) concentrations were generally reported below the limit of reporting with the exception of the following:

- $>C_{10}$-C_{16} ranged from <50 to 120 mg/kg (STP28_1.5 and STP33_2.0), with no exceedances of the adopted criteria;
- $>C_{10}$-C_{16} less naphthalene ranged from <50 to 120 mg/kg (STP28_1.5 and STP33_2.0) with no exceedances of the adopted criteria;
- $>C_{16}$-C_{34} ranged from <100 mg/kg to 2100 mg/kg (STP33_2.0) with no exceedances of the adopted criteria; and
- $>C_{34}$-C_{40} ranged from <100 mg/kg to 300 mg/kg (STP33_2.0) with no exceedances of the adopted criteria.

Concentrations of PAHs were generally reported below the limit of reporting with the exception of STP12_3.0, STP17_1.0, STP19_1.0 (and the respective duplicate and triplicate samples), STP21_1.0, STP33_2.0 and STP38_3.0. A summary is presented below:

- Total PAH concentrations ranged from <0.5 mg/kg to 251.8 mg/kg (STP21_1.0), with no exceedances of the adopted criteria; and
- Benzo(a)pyrene range from <0.05 mg/kg to 17 mg/kg (STP21_1.0). The soil samples located at STP12_3.0 (3.1mg/kg), STP17_1.0 (2.3 mg/kg), STP19_1.0 (2.6 mg/kg) and STP21_1.0 (17 mg/kg) exceeded the adopted ecological criteria for the site (0.7 mg/kg).

The majority of asbestos analytical results from the site were non-detects with the exception of the following:

- Bonded ACM detect values ranged from 0.0294 %w/w to 0.218 % w/w. The soil samples STP09_1.5 (0.587 %w/w), STP37_1.5 (0.2181 %w/w) and STP42_1.7 (0.055 %w/w) exceeded the adopted health criteria for the site (0.05 %w/w); and
- Asbestos as free fibres ranged from 0.0001 %w/w to 0.0133 %w/w (STP33_2.0). The soil samples located at STP21_2.0 (0.0055 %w/w), STP24_0.6 (0.0022 %w/w), STP33_2.0 (0.133 %w/w) and STP35_1.7 (as QS03 – 0.0069 % w/w) exceeded the published health based criteria for the site (0.001 %w/w). However statistical analysis was undertaken of the data set and comparison to the site specific criteria derived in **Section 5.2.1** was undertaken. Results of statistical analysis and provided as **Appendix E**. The estimated 95% UCL_{avg} concentration of 150 mg/kg is well below the site specific criteria derived for asbestos on the site.

As discussed in the field observations, bulk quantities of fibre cement sheet fragments were further identified as several locations within the stockpiled spoils and will require remediation.

8. Discussion

8.1 Broad Acre Area

As reported in **Section 7.2** the broad acre area was observed to be contain minimal fill material and there was no evidence of any obvious contamination. Additionally, analytical results indicated the site is suitable for commercial / industrial purposes with no exceedance of the adopted criteria.

8.2 Illegally Imported Fill

The illegally imported fill stockpiled in the north western corner of the site was reported to contain material which exceeded the health and ecological criteria for some constituents.

8.2.1 Exceedances of Chemical Criteria

As reported in **Section 7.3** the soil ecological criteria for commercial/industrial land use were exceeded in a select few samples collected from the stockpiles on site. Ecological criteria exceedances in these samples related to copper, zinc and benzo(a)pyrene concentrations. With consideration of the commercial/industrial land-use of the site, and likelihood of the site to be surfaced with concrete or hardstand following redevelopment works, it is considered that there is little potential for ecological receptors to be adversely impacted by these soil impacts.

Notwithstanding, it is recommended that where the illegally imported fill materials are re-used within the site that they are not used as growing media. They should instead be retained to areas of the site that are proposed to be covered in hardstand. It is considered there is sufficient soils available on site to be used for gardens / growing soils as required.

8.2.2 Anthropogenic Inclusions

As reported **Section 7.3** areas of anthropogenic rubbish (non-putrescible) with trace amounts of soil were identified in some locations of the stockpile. It was identified there was no chemical contamination risk of this material. It is considered aesthetically unsuitable for the purpose of the site.

Where this material is if determined to be geotechnically suitable by the client, it may be retained on site where it is located at a sufficient depth to not be observed at the site surface.

Additionally, two stockpiles of non-putrescible anthropogenic rubbish were observed on the property, consisting of concrete rubble, scrap metal, timber, tyres and other rubbish. Similar to the buried anthropogenic rubbish these materials are inert and pose no chemical contamination risk, however, aesthetically these materials are unsuitable to remain on the surface of the site.

8.2.3 Exceedances of Asbestos Criteria

Bonded asbestos was observed in some sample locations within the area of illegally imported fill material to be present in excessive amounts. Quantification of bonded asbestos / fibre cement sheet fragments was not undertaken in the field, however there is no doubt that the extent of bonded asbestos would cause the associated risk based criteria to be exceeded.

As noted in **Section 7.3.2** levels of free asbestos / friable asbestos as measured in the illegally imported fill materials are not considered to be at levels that would pose a health risk for a commercial / industrial site.

Though the fill materials were observed to be generally consistent throughout the extent of fill assessed, likely as a consequence of the reworking / spreading and stockpiling of soils within the portion of the site, the distribution of potential asbestos containing materials was heterogeneous. On this basis, there is a potential for other areas of significant quantities of buried ACM within the soils that were not detected by the site works.

It is recommended that the whole of the illegally imported fill materials are remediated to remove all visible bonded asbestos.

8.3 Assessment Against the Decision Rule

The following provides an assessment of the soil data against the decision rules set out in **Section 4.1**:

- Are there any unacceptable risks to likely future onsite receptors from impacted soils during development? Yes, the bonded ACM present in stockpiled soils poses an unacceptable risk to likely future onsite receptors. It is recommended these soils are remediated by picking out ACM impact. Levels of some heavy metals and benzo(a)pyrene in stockpiled / fill based soils exceed ecological based criteria. These soils are unsuitable to be used as growing media on the site;
- Are there any issues relating to local area background soil concentrations that exceed the appropriate soil criteria? There are no issues relating to local area background soil concentrations that exceed the appropriate soil criteria;
- Are there any impacts of chemical mixtures? There are no impacts of chemical mixtures;
- Are the illegally imported fill materials as present at the north-west of the site suitable from an environmental contamination perspective for a future use on the site as filling material? The illegally imported fill materials present at the north-west of the site are suitable from an environmental contamination perspective to remain on site providing bonded asbestos identified in localised areas is removed from the soil. The whole of the soils warrant remediation to ensure that all areas of bonded asbestos impact are removed.
- Are there any aesthetic concerns in fill soils present at the site? There are aesthetic concerns in the fill soils present in the stockpiles in the north western area of the site where some locations contain primarily anthropogenic materials (and only trace amounts of soils). These materials are recommended to be placed at depth if determined to be geotechnically suitable for that purpose. As per the previous question, areas of visually identifiable ACM also require removal;
- Is there any evidence of, or potential for, migration of contaminants off-site? There is no evidence or potential for migration of contaminants off-site.
- Is a site management strategy required? Given that the ACM material has been identified in the stockpile soils in the north west portion of the site, environmental, health and safety management requirements for the handling of all materials disturbed during site remediation and subsequent construction activities will be based on the requirements provided for asbestos-related works in SWA 2011/NSW WorkCover 2011. This will include preparation of an asbestos register and associated asbestos removal control/management plan as outlined in SWA 2011/NSW WorkCover 2011. Where the bonded asbestos materials are removed, it is considered that the soils will not pose a health risk as per the future use of the site. However, the known presence of asbestos fibres in fill materials on the area of the site where re-use occurs will require to be recorded on Council records for consideration in potential future site developments.

8.4 Assessment of Compliance with Limits in Decision Error

Results were assessed for compliance with the decision error with respect to health based criteria as per the equation in **Section 4.1.6**. Calculations were completed separately for illegally imported fill and the broad acre area, for constituents with health based criteria and when results for a minimum of one sample were reported above the limit of reporting, these are shown in **Table 8.1**. Based on

the results it is evident that the environmental data obtained from the assessment is sufficiently reliable to support decision making in relation to the site status.

Table 8.1: Summary of Decision Error Limits Calculations

Constituent	Health Based Criteria (mg/kg)	Broad Acre Area			Illegally Imported Fill		
		Average (mg/kg)	Standard Deviation (mg/kg)	n (n = 6.2*σ2/(Cs-μ)2)	Average (mg/kg)	Standard Deviation (mg/kg)	n (n = 6.2*σ2/(Cs-μ)2)
Arsenic (Total)	3000	7.75	3.48	8.39E-06	7.62	3.31	7.59E-06
Cadmium	900	-	-	-	0.42	0.089	6.07E-08
Chromium (Total)	3600	17.27	4.75	1.09E-05	14.06	5.95	1.71E-05
Copper	240000	6.28	2.49	6.67E-10	35.78	77.6	6.48E-07
Lead	1500	12.15	3.43	3.30E-05	77.04	89.43	2.45E-02
Mercury (Inorganic)	730	-	-	-	0.13	0.13	1.97E-07
Nickel	6000	-	-	-	6.25	1.65	4.70E-07
Zinc	400000	10.5	6.28	1.53E-09	95.19	86.3	2.89E-07
Carcinogenic PAHs as B(a)P TPE	40	-	-	-	2.26	4.39	8.39E-02
PAHs (Total)	4000	-	-	-	12.49	45.34	8.02E-04
Aldrin + Dieldrin	45	-	-	-	0.11	0.03	2.08E-06
Asbestos from FA & AF in Soil[1]	500	-	-	-	74.12	313.9	3.37

9. Conclusions

Based on the data presented herein, and in accordance with the Limitations in **Section 10**, the following conclusions are made:

- Soils in the broad acre area were reported to be suitable to remain on site for the commercial/industrial land use;
- Within the fill stockpiled material there were exceedances of the ecological criteria for zinc, cooper and benzo(a)pyrene, however this is determined not to adversely impact ecological receptors due to the likelihood of concrete / hardstand covered surface with the proposed commercial / industrial development of the site and associated opportunity to use these soils underlying hardstand;
- Within the fill stockpiled material ACM contamination is present (as bonded and friable material/free asbestos). Bonded ACM was present is excess quantities in some localised areas and friable asbestos / free asbestos material was not considered to be present at a level, across the extent of the site soils, that posed a potential health risk to future commercial/industrial site users; and
- Layers of primarily anthropogenic material were as present in some locations in the stockpiles were determined to be aesthetically unsuitable for uncontrolled use on the site.

On the basis of the assessment it is recommended:

- The stockpiled soils are spread and areas of bonded ACM (ie. fibre cement sheet fragments) are removed by hand picking;
- An appropriate asbestos environmental, health and safety management plan and asbestos register is completed as outlined in SWA 2011/NSW WorkCover 2011 during all remediation and construction works in proximity of the stockpiled / fill soils;
- Fill material present in the stockpiles is not appropriate to be used as growing media; and
- Anthropogenic material is placed at depth if determined to be geotechnically suitable by the client.

10. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and 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.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

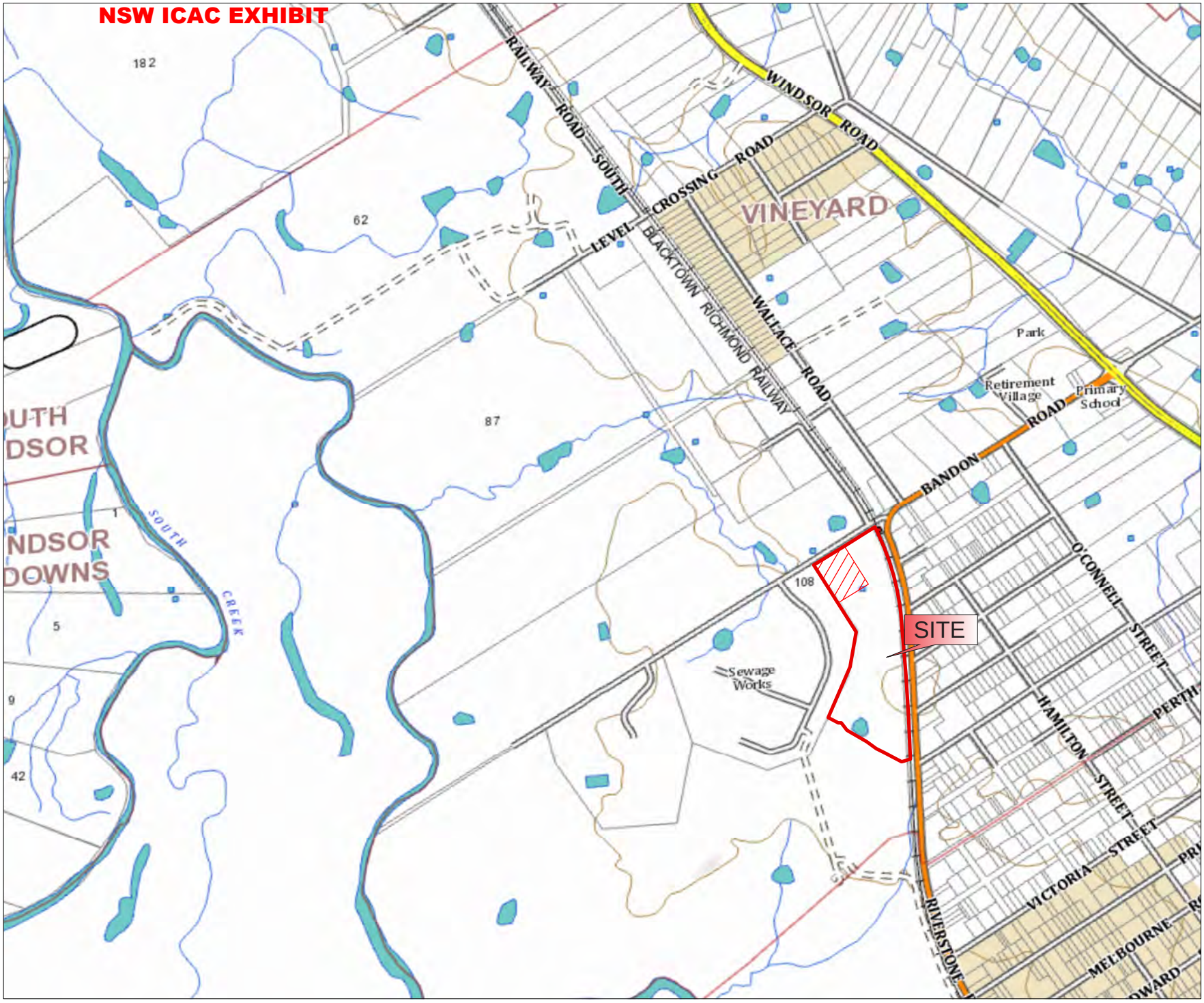
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

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

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

This report does not provide a complete assessment of the environmental status of the site, 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



Legend:

- Approximate Site Boundary
- Area of Historic Fly Tipping

JBS&G

Job No: 50648

Client: Riverstone Parade Pty Ltd

Version: R03 Rev A	Date: 14-Jun-2016
Drawn By: SE	Checked By: CB

Scale 1:17,500

0 200 400
metres

Coor. Sys. GDA 1994 MGA Zone 56

Riverstone Parade
Riverstone, NSW
SAQP Additional Site Works

SITE LOCATION

FIGURE 1:

File Name: 50648_01
Reference: http://maps.sixmaps.gov.au

Legend:

- Approximate Site Boundary
- Area of Historic Fly Tipping
- ACM Fragment

JBS&G

Job No: 50648

Client: Riverstone Parade Pty Ltd

Version: R03 Rev A	Date: 14-Jun-2016
Drawn By: SE	Checked By: CB

Scale 1:5,000

0 50 100
metres

Coor. Sys. GDA 1994 MGA Zone 56

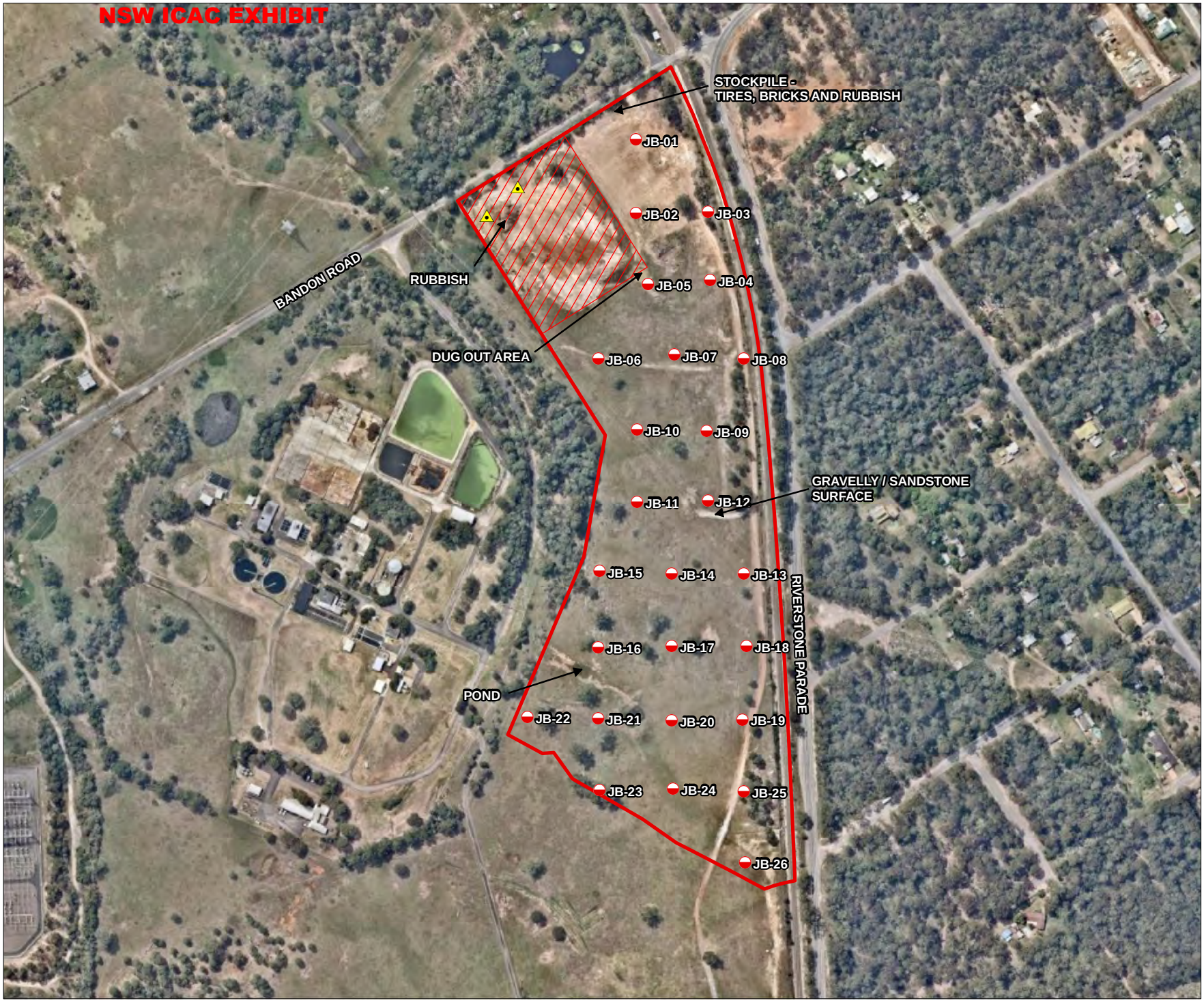
Riverstone Parade
Riverstone, NSW
SAQP Additional Site Works

SITE LAYOUT

FIGURE 2:

File Name: 50648_02
Reference: http://au.nearmap.com/ - Imagery 24-Feb-2016

NSW ICAC EXHIBIT



Legend:

- Approximate Site Boundary
- Area of Historic Fly Tipping
- ACM Fragment
- Sample Locations Broad Acre Area

JBS&G

Job No: 50648

Client: Riverstone Parade Pty Ltd

Version: R03 Rev A	Date: 14-Jun-2016
Drawn By: SE	Checked By: CB

Scale 1:5,000

0 50 100
metres

Coor. Sys. GDA 1994 MGA Zone 56

Riverstone Parade
Riverstone, NSW
SAQP Additional Site Works

SAMPLE LOCATIONS -
BROAD ACRE AREA

FIGURE 3:

File Name: 50648_03
Reference: http://au.nearmap.com/ - Imagery 24-Feb-2016

Legend:

- Approximate Site Boundary
- Area of Historic Fly Tipping
- ACM Fragment
- Sample Location Illegally Dumped Fill

JBS&G

Job No: 50648

Client: Riverstone Parade Pty Ltd

Version: R03 Rev A	Date: 15-Jun-2016
Drawn By: SE	Checked By: CB

Scale 1:1,250

0 10 20
metres

Coor. Sys. GDA 1994 MGA Zone 56

Riverstone Parade
Riverstone, NSW
SAQP Additional Site Works

SAMPLE LOCATIONS - ILLEGALLY DUMPED FILL

FIGURE 4:

File Name: 50648_04
Reference: http://au.nearmap.com/ - Imagery 06-May-2016

Appendix A Summary Tables

NSW ICAC EXHIBIT

Table A: Soil Results - Broad Acre Area Validation
Project Number: 50648
Project Name: Riverstone Parade Additional Works

					Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)						BTEX						Polychlorinated Biphenyls							
					Arsenic (Total)	Cadmium	Chromium (Total)	Copper	Lead	Mercury (Inorganic)	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	C6-C10 Fraction	C6 - C10 less BTEX (F1)	>C10 - C16 less Naphthalene (F2)	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene (Total)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					2.00	0.40	1.00	1.00	1.00	0.05	1.00	1.00	20.00	20.00	50.00	50.00	50.00	50.00	100.00	100.00	20.00	20.00	50.00	0.10	0.10	0.10	0.20	0.10	0.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil					160		670	120	1800		150	300						170[#1]	2500[#2]	6600[#2]	215[#3]	215[#1]	170[#1]	95[#2]	185[#2]	135[#2]			95[#2]								
NEPM 2013 Soil HIL D					3000[#4]	900	3600[#5]	240000	1500[#6]	730[#7]	6000	400000																									7[#10]
NEPM 2013 Soil HSL D																						310[#11]	NL	4	NL	NL			NL								
Field ID	**Depth**	**Sample Date**	**Lab**	**Location**																																		
JB-01_0-0.15	0-0.15	10/05/2016	499963	JB-01	4.6	<0.4	11	<5	7.2	<0.05	<5	<5	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
JB-01_0-0.2	0-0.2	10/05/2016	499963	JB-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-02_0-0.15	0-0.15	10/05/2016	499963	JB-02	9.3	<0.4	16	5.9	11	<0.05	<5	7.9	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
JB-02_0-0.3	0-0.3	10/05/2016	499963	JB-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-03_0-0.15	0-0.15	10/05/2016	499963	JB-03	7.7	<0.4	17	<5	7.8	<0.05	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-06_0-0.15	0-0.15	10/05/2016	499963	JB-06	12	<0.4	19	6.6	13	<0.05	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-07_0-0.15	0-0.15	10/05/2016	499963	JB-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0.9-1.0	0.9-1	10/05/2016	499963	JB-08	3.3	<0.4	13	<5	<5	<0.05	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0-0.15	0-0.15	10/05/2016	499963	JB-08	3.6	<0.4	13	<5	18	<0.05	<5	8	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS01	0-0.15	10/05/2016	499963	JB-08	5.1	<0.4	27	<5	16	<0.05	<5	6.2	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS01A	0-0.15	10/05/2016	146353	JB-08	<4	<0.4	13	3	17	<0.1	<1	7	<25	<50	<100	<100	-	<50	<100	<100	<25	<25	<50	<0.2	<1	<0.5	<2	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
JB-08_0-0.3	0-0.3	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-09_0-0.15	0-0.15	10/05/2016	499963	JB-09	6.1	<0.4	16	<5	8.6	<0.05	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-10_0-0.15	0-0.15	10/05/2016	499963	JB-10	-	-	-	-	-	-	-	-	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	-	-	-	-	-	-	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
JB-11_0-0.15	0-0.15	10/05/2016	499963	JB-11	6.6	<0.4	18	7.9	9.4	<0.05	<5	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-11_0-0.2	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02A	0-0.2	10/05/2016	146353	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-13_0-0.15	0-0.15	10/05/2016	499963	JB-13	6	<0.4	14	<5	9.1	<0.05	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.15	0-0.15	10/05/2016	499963	JB-16	11	<0.4	20	10	13	<0.05	<5	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.5	0-0.5	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-17_0-0.15	0-0.15	10/05/2016	499963	JB-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-18_0-0.15	0-0.15	10/05/2016	499963	JB-18	-	-	-	-	-	-	-	-	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-19_0-0.15	0-0.15	10/05/2016	499963	JB-19	12	<0.4	25	5.2	14	<0.05	<5	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-20_0-0.15	0-0.15	10/05/2016	499963	JB-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
JB-23_0-0.15	0-0.15	10/05/2016	499963	JB-23	13	<0.4	23	7.6	13	<0.05	<5	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-25_0-0.15	0-0.15	10/05/2016	499963	JB-25	12	<0.4	14	13	13	<0.05	<5	25	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
JB-25_0-0.6	0-0.6	10/05/2016	499963	JB-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadebaum (2011b and 2011d).
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific assessment should be untertaken
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies further interpretation. To obtain F1 subtract the sum of BTEX from C6-C10. NL - Not Limiting.
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies further interpretation. To obtain F2 subtract naohthalene from >C10-C16. NL - Not Limiting.
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceedence quantifies further interpretation.

Data Comments

#1 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#2 No respirable fibres detected
#3 Organic fibres detected.
#4 ESDAT Combined.
#5 NIL (+)VE
#6 Nil

NSW ICAC EXHIBIT

Table A: Soil Results - Broad Acre Area Validation
Project Number: 50648
Project Name: Riverstone Parade Additional Works

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					Polycyclic Aromatic Hydrocarbons																					Asbestos										Asbestos		Asbestos - Trace Analysis				
					Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)*	Benzo(a)pyrene TEQ (medium bound)*	Benzo(a)pyrene TEQ (upper bound)*	Benzo(b,j)fluoranthene	Benzo(b,k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Carcinogenic PAHs as B(a)P TPE	Naphthalene	Phenanthrene	Pyrene	PAHs (Total)	Total Positive PAHs	Approx. Sample Mass	Asbestos from ACM in Soil	Mass ACM	Mass Asbestos in ACM	Asbestos from FA & AF in Soil	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Asbestos ID in Soil	Synthetic Fibres - Comment	ACM - Comment	AF - Comment	FA - Comment	Organic Fibres - Comment	Respirable Fibres - Comment
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g	%w/w	g	g	%w/w	g	g	g	g	g	Comment	Comment	Comment	Comment	Comment	Comment	Comment
EQL					0.10	0.10	0.10	0.10	0.05	0.50	0.50	0.50	0.50		0.10	0.50	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.10	0.50																		
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil									0.7[#2]														370																				
NEPM 2013 Soil HIL D																						40[#8]				4000[#9]																	
NEPM 2013 Soil HSL D																							NL					0.05			0.001												
Field ID	**Depth**	**Sample Date**	**Lab**	**Location**																																						
JB-01_0-0.15	0-0.15	10/05/2016	499963	JB-01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-01_0-0.2	0-0.2	10/05/2016	499963	JB-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	495	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
JB-02_0-0.15	0-0.15	10/05/2016	499963	JB-02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-02_0-0.3	0-0.3	10/05/2016	499963	JB-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	716	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
JB-03_0-0.15	0-0.15	10/05/2016	499963	JB-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-06_0-0.15	0-0.15	10/05/2016	499963	JB-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-07_0-0.15	0-0.15	10/05/2016	499963	JB-07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0.9-1.0	0.9-1	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0-0.15	0-0.15	10/05/2016	499963	JB-08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS01	0-0.15	10/05/2016	499963	JB-08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS01A	0-0.15	10/05/2016	146353	JB-08	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	-	<0.2	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.172[#1]	<0.1	<0.1	<0.1	-	0[#5]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0-0.3	0-0.3	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	811	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
JB-09_0-0.15	0-0.15	10/05/2016	499963	JB-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-10_0-0.15	0-0.15	10/05/2016	499963	JB-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-11_0-0.15	0-0.15	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-11_0-0.2	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	691	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
QS02	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	626	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
QS02A	0-0.2	10/05/2016	146353	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
JB-13_0-0.15	0-0.15	10/05/2016	499963	JB-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.15	0-0.15	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.5	0-0.5	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	733	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]
JB-17_0-0.15	0-0.15	10/05/2016	499963	JB-17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-18_0-0.15	0-0.15	10/05/2016	499963	JB-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-19_0-0.15	0-0.15	10/05/2016	499963	JB-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-20_0-0.15	0-0.15	10/05/2016	499963	JB-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-23_0-0.15	0-0.15	10/05/2016	499963	JB-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-25_0-0.15	0-0.15	10/05/2016	499963	JB-25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#4]	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-25_0-0.6	0-0.6	10/05/2016	499963	JB-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	639	0	0	0	0	0	0	0	0	0	-	1[#6]	1[#6]	1[#6]	1[#6]	1[#3]	1[#2]

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadeba
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific asse
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies furth
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies furt
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceeder

Data Comments

#1 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#2 No respirable fibres detected
#3 Organic fibres detected.
#4 ESDAT Combined.
#5 NIL (+)VE
#6 Nil

NSW ICAC EXHIBIT

Table A: Soil Results - Broad Acre Area Validation
Project Number: 50648
Project Name: Riverstone Parade Additional Works

					Organochlorine Pesticides																								
					Aldrin	4,4-DDE	Aldrin + Dieldrin (Sum of Total)	Dieldrin	DDD	alpha-BHC	DDT	DDT+DDE+DDD (Sum of Total)	beta-BHC	alpha-Chlordane	Chlordane	delta-BHC	gamma-Chlordane	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Lindane	Methoxychlor	Toxaphene
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.05	0.05		0.05	0.05	0.05	0.05		0.05		0.10	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.10	1.00
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil											640																		
NEPM 2013 Soil HIL D							45					3600			530						100			50		80		2500	160
NEPM 2013 Soil HSL D																													
Field ID	**Depth**	**Sample Date**	**Lab**	**Location**																									
JB-01_0-0.15	0-0.15	10/05/2016	499963	JB-01	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
JB-01_0-0.2	0-0.2	10/05/2016	499963	JB-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-02_0-0.15	0-0.15	10/05/2016	499963	JB-02	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
JB-02_0-0.3	0-0.3	10/05/2016	499963	JB-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-03_0-0.15	0-0.15	10/05/2016	499963	JB-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-06_0-0.15	0-0.15	10/05/2016	499963	JB-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-07_0-0.15	0-0.15	10/05/2016	499963	JB-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0.9-1.0	0.9-1	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0-0.15	0-0.15	10/05/2016	499963	JB-08	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS01	0-0.15	10/05/2016	499963	JB-08	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS01A	0-0.15	10/05/2016	146353	JB-08	<0.1	<0.1	<0.2[#1]	<0.1	<0.1	<0.1	<0.1	<0.3[#1]	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
JB-08_0-0.3	0-0.3	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-09_0-0.15	0-0.15	10/05/2016	499963	JB-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-10_0-0.15	0-0.15	10/05/2016	499963	JB-10	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
JB-11_0-0.15	0-0.15	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-11_0-0.2	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02A	0-0.2	10/05/2016	146353	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-13_0-0.15	0-0.15	10/05/2016	499963	JB-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.15	0-0.15	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.5	0-0.5	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-17_0-0.15	0-0.15	10/05/2016	499963	JB-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-18_0-0.15	0-0.15	10/05/2016	499963	JB-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-19_0-0.15	0-0.15	10/05/2016	499963	JB-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-20_0-0.15	0-0.15	10/05/2016	499963	JB-20	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
JB-23_0-0.15	0-0.15	10/05/2016	499963	JB-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-25_0-0.15	0-0.15	10/05/2016	499963	JB-25	<0.05	<0.05	<0.1[#1]	<0.05	<0.05	<0.05	<0.05	<0.15[#1]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
JB-25_0-0.6	0-0.6	10/05/2016	499963	JB-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadeba
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
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#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceeder

Data Comments

#1 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#2 No respirable fibres detected
#3 Organic fibres detected.
#4 ESDAT Combined.
#5 NIL (+)VE
#6 Nil

NSW ICAC EXHIBIT

Table A: Soil Results - Broad Acre Area Validation
Project Number: 50648
Project Name: Riverstone Parade Additional Works

					Organophosphorus Pesticides																																	
					Azinphos methyl	Bromophos-ethyl	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprophos	EPN	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Mevinphos	Monocrotophos	Omethoate	Parathion	Parathion methyl	Phorate	Pirimiphos methyl	Pyrazophos	Ronnel	Sulprofos	Terbufos	Tetrachlorvinphos	Tokuthion	Trichloronate
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.10		0.20	0.10	0.10	2.00	0.20	0.20	0.10	0.10	0.10	0.20	0.10	0.20	0.20	0.10	0.20	0.20	0.10	0.20	0.20	2.00	2.00	0.10	0.20	0.20	0.20	0.20	0.10	0.20	0.20	0.20	0.20	0.20
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil																																						
NEPM 2013 Soil HIL D								2000																														
NEPM 2013 Soil HSL D																																						
Field ID	**Depth**	**Sample Date**	**Lab**	**Location**																																		
JB-01_0-0.15	0-0.15	10/05/2016	499963	JB-01	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
JB-01_0-0.2	0-0.2	10/05/2016	499963	JB-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-02_0-0.15	0-0.15	10/05/2016	499963	JB-02	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
JB-02_0-0.3	0-0.3	10/05/2016	499963	JB-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-03_0-0.15	0-0.15	10/05/2016	499963	JB-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-06_0-0.15	0-0.15	10/05/2016	499963	JB-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-07_0-0.15	0-0.15	10/05/2016	499963	JB-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0.9-1.0	0.9-1	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-08_0-0.15	0-0.15	10/05/2016	499963	JB-08	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
QS01	0-0.15	10/05/2016	499963	JB-08	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
QS01A	0-0.15	10/05/2016	146353	JB-08	<0.1	<0.1	-	<0.1	<0.1	-	-	-	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	<0.1	-	-	-	-	<0.1	-	-	-	-	-
JB-08_0-0.3	0-0.3	10/05/2016	499963	JB-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-09_0-0.15	0-0.15	10/05/2016	499963	JB-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-10_0-0.15	0-0.15	10/05/2016	499963	JB-10	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
JB-11_0-0.15	0-0.15	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-11_0-0.2	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02	0-0.2	10/05/2016	499963	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS02A	0-0.2	10/05/2016	146353	JB-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-13_0-0.15	0-0.15	10/05/2016	499963	JB-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.15	0-0.15	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-16_0-0.5	0-0.5	10/05/2016	499963	JB-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-17_0-0.15	0-0.15	10/05/2016	499963	JB-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-18_0-0.15	0-0.15	10/05/2016	499963	JB-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-19_0-0.15	0-0.15	10/05/2016	499963	JB-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-20_0-0.15	0-0.15	10/05/2016	499963	JB-20	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
JB-23_0-0.15	0-0.15	10/05/2016	499963	JB-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JB-25_0-0.15	0-0.15	10/05/2016	499963	JB-25	<0.2	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
JB-25_0-0.6	0-0.6	10/05/2016	499963	JB-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadeba
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific asse
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies furthe
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies furt
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceeder

Data Comments

#1 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#2 No respirable fibres detected
#3 Organic fibres detected.
#4 ESDAT Combined.
#5 NIL (+)VE
#6 Nil

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

JBS&G

				Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)						BTEX						Polychlorinated Biphenyls							
				Arsenic (Total)	Cadmium	Chromium (Total)	Copper	Lead	Mercury (Inorganic)	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	C6-C10 Fraction	C6 - C10 less BTEX (F1)	>C10 - C16 less Naphthalene (F	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene (Total)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				2.00	0.40	1.00	1.00	1.00	0.05	1.00	1.00	20.00	20.00	50.00	50.00	50.00	50.00	100.00	100.00	20.00	20.00	50.00	0.10	0.10	0.10	0.20	0.10	0.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil				160		670	120	1800		150	300						170[#1]	2500[#2]	6600[#2]	215[#3]	215[#1]	170[#1]	95[#2]	185[#2]	135[#2]			95[#2]								
NEPM 2013 Soil HIL D				3000[#4]	900	3600[#5]	240000	1500[#6]	730[#7]	6000	400000																									7[#10]
NEPM 2013 Soil HSL D																					310[#11]	NL	4	NL	NL			NL								
NEPM 2013 Soil HSL D - Sensitive Setting																					250[#13]	NL	3[#15]	NL	NL			230[#15]								
Field ID	**Depth**	**Sample Date**	**Lab**																																	
STP01_0.3	0.3	26/05/2016	502310	7.6	<0.4	<5	110	11	0.08	<5	30	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP02_1.0	1	26/05/2016	502310	5.9	<0.4	<5	12	5.4	0.06	5.4	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP03_1.0	1	26/05/2016	502310	11	<0.4	<5	60	9.9	0.07	<5	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP04_1.0	1	26/05/2016	502310	7.7	<0.4	14	17	19	<0.05	6.3	55	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP05_1.0	1	26/05/2016	502310	6.4	<0.4	12	19	19	<0.05	7.3	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP06_1.0	1	26/05/2016	502310	5.6	<0.4	<5	5.5	<5	<0.05	<5	5.1	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS01 - duplicate of STP06_1.0	1	26/05/2016	502310	6.4	<0.4	8.6	7.1	6.4	<0.05	<5	7.1	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS01A - triplicate of STP06_1.0	1	26/05/2016	147482	8	<0.4	15	9	10	<0.1	2	8	<25	<50	<100	<100	-	<50	<100	<100	<25	<25	<50	<0.2	<1	<0.5	<2	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
STP06_2.0	2	26/05/2016	502310	9.2	<0.4	15	20	42	<0.05	9	64	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP07_1.5	1.5	26/05/2016	502310	6.8	<0.4	16	22	34	<0.05	7.5	53	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP08_1.0	1	26/05/2016	502310	5.9	<0.4	15	15	23	<0.05	<5	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP08_2.0	2	26/05/2016	502310	6.6	<0.4	19	11	26	<0.05	8.8	64	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP09_1.0	1	26/05/2016	502310	8	<0.4	10	19	63	0.08	<5	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP09_1.5	1.5	26/05/2016	502310	8	<0.4	15	23	87	0.11	6.9	110	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP10_1.0	1	26/05/2016	502310	15	<0.4	22	12	21	<0.05	10	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP11_1.0	1	26/05/2016	502310	9.7	<0.4	16	15	20	<0.05	8.1	38	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP12_2.0	2	26/05/2016	502310	6.6	<0.4	15	75	260	0.3	10	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP12_3.0	3	26/05/2016	502310	9.3	<0.4	12	58	290	0.35	8.2	230	<20	<20	190	270	460	<50	430	100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP13_1.0	1	26/05/2016	502310	8	<0.4	14	22	30	0.06	10	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP13_2.0	2	26/05/2016	502310	9.2	<0.4	15	25	38	0.11	5.9	100	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP14_1.5	1.5	26/05/2016	502310	7.1	<0.4	12	26	67	0.2	5.4	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP14_2.5	2.5	26/05/2016	502310	9.1	<0.4	24	22	54	0.25	6	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP15_1.0	1	26/05/2016	502310	15	<0.4	28	12	20	<0.05	8.4	43	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP16_1.0	1	26/05/2016	502310	10	<0.4	14	20	32	<0.05	5.8	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP17_1.0	1	26/05/2016	502310	8.6	<0.4	16	72	350	0.41	8.3	230	<20	<20	110	150	260	<50	240	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP17_2.0	2	26/05/2016	502310	6.4	<0.4	11	26	310	0.16	<5	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.0	1	26/05/2016	502310	6.1	<0.4	12	14	17	<0.05	6.7	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.5	1.5	26/05/2016	502310	17	<0.4	15	13	18	<0.05	<5	29	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP19_1.0	1	26/05/2016	502310	5.8	<0.4	8.1	32	140	0.26	<5	130	<20	<20	130	100	230	<50	220	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS02 - duplicate of STP19_1.0	1	26/05/2016	502310	6.1	<0.4	12	42	220	0.4	6.1	320	<20	<20	67	67	134	<50	120	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QS02A - triplicate of STP19_1.0	1	26/05/2016	147482	5	<0.4	13	46	130	0.2	6	110	<25	<50	<100	<100	-	<50	<100	<100	<25	<25	<50	<0.2	<1	<0.5	<2	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
STP20_0.8	0.8	26/05/2016	502310	9.1	<0.4	16	9.6	8.5	<0.05	<5	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP21_1.0	1	26/05/2016	502310	6.5	<0.4	9.6	42	230	0.63	5.3	260	<20	<20	820	440	1260	<50	1200	150	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP21_2.0	2	26/05/2016	502310	12	<0.4	13	600	260	0.57	6.9	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.0	1	26/05/2016	502310	11	<0.4	18	7.5	19	<0.05	<5	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.5	1.5	26/05/2016	502310	6.8	<0.4	11	10	24	0.07	<5	30	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP23_0.6	0.6	27/05/2016	502310	6.6	<0.4	13	8.8	14	<0.05	<5	22	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP24_0.6	0.6	27/05/2016	502310	7.5	<0.4	13	21	23	<0.05	8.3	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP25_0.6	0.6	27/05/2016	502310	6.7	<0.4	13	24	21	<0.05	9.5	55	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP26_1.0	1	27/05/2016	502310	9.7	<0.4	19	37	23	<0.05	6.8	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP27_0.4	0.4	27/05/2016	502310	7.7	<0.4	15	17	29	<0.05	5.3	61	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
STP28_1.5	1.5	1/06/2016	502876	5.6	0.5	9.7	36	60	<0.1	6.9	240	<20	76	250	130	456	120	340	<100	<20	<20	120	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

JBS&G

				Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)						BTEX						Polychlorinated Biphenyls							
				Arsenic (Total)	Cadmium	Chromium (Total)	Copper	Lead	Mercury (Inorganic)	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	C6-C10 Fraction	C6 - C10 less BTEX (F1)	>C10 - C16 less Naphthalene (F	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene (Total)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				2.00	0.40	1.00	1.00	1.00	0.05	1.00	1.00	20.00	20.00	50.00	50.00	50.00	50.00	100.00	100.00	20.00	20.00	50.00	0.10	0.10	0.10	0.20	0.10	0.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil				160		670	120	1800		150	300						170[#1]	2500[#2]	6600[#2]	215[#3]	215[#1]	170[#1]	95[#2]	185[#2]	135[#2]			95[#2]								
NEPM 2013 Soil HIL D				3000[#4]	900	3600[#5]	240000	1500[#6]	730[#7]	6000	400000																									7[#10]
NEPM 2013 Soil HSL D																					310[#11]	NL	4	NL	NL			NL								
NEPM 2013 Soil HSL D - Sensitive Setting																					250[#13]	NL	3[#15]	NL	NL			230[#15]								
Field ID	**Depth**	**Sample Date**	**Lab**																																		
STP29_0.7	0.7	1/06/2016	502876	2.9	<0.4	12	36	120	0.3	5.7	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP30_0.8	0.8	1/06/2016	502876	2	0.7	18	11	10	<0.1	<5	22	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP31_0.9	0.9	1/06/2016	502876	4.8	<0.4	11	18	25	<0.1	<5	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP32_2.0	2	1/06/2016	502876	9	<0.4	20	18	21	<0.1	<5	63	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
STP33_2.0	2	1/06/2016	502876	<2	<0.4	12	92	120	0.1	6.4	160	<20	83	1600	610	2293	120	2100	300	<20	<20	120	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP34_1.5	1.5	1/06/2016	502876	<2	<0.4	26	8.7	15	<0.1	<5	18	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
STP35_1.7	1.7	1/06/2016	502876	3.4	0.5	11	21	140	0.1	5.3	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03 - duplicate of STP35_1.7	1.7	1/06/2016	502876	7.8	<0.4	14	27	190	0.2	7.4	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03A - triplicate of STP35_1.7	1.7	1/06/2016	147827	8	0.5	13	26	190	0.2	6	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP36_1.0	1	1/06/2016	502876	6.7	0.4	14	18	36	<0.1	<5	74	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP37_1.5	1.5	1/06/2016	502876	19	<0.4	22	14	16	<0.1	<5	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP38_3.0	3	1/06/2016	502876	2.4	1	12	44	170	0.1	5.5	200	<20	<20	170	72	242	<50	210	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
STP41_0.25	0.25	1/06/2016	502876	2	0.4	8.3	31	140	0.1	<5	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP42_1.7	1.7	1/06/2016	502876	6.6	<0.4	40	12	110	<0.1	<5	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP43_0.5	0.5	1/06/2016	502876	5.2	0.4	14	18	59	<0.1	8.8	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP44_1.0	1	1/06/2016	502876	2.8	<0.4	7.8	17	12	<0.1	6.3	39	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	-	-	-	-	-	-	-
STP45_0.2	0.2	1/06/2016	502876	5.6	<0.4	5.2	<5	10	<0.1	<5	17	<20	<20	<50	<50	<50	<50	<100	<100	<20	<20	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadebaum (2011b and 2011d).
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific assessment should be untertaken
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies further interpretation. To obtain F1 subtract the sum of BTEX from C6-C10. NL - Not Limiting.
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies further interpretation. To obtain F2 subtract naohthalene from >C10-C16. NL - Not Limiting.
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceedence quantifies further interpretation.

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0.5. Some Analytes are missing from this Combined Compound.
#2 ACM: Chrysotile amosite and crocidolite asbestos detected in fibre cement fragments.
#3 AF: Amosite and crocidolite asbestos detected in the form of loose fibre bundles.
#4 FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments.
#5 ACM: Chrysotile and amosite asbestos detected in fibre cement fragments.
#6 AF: Chrysotile and amosite asbestos detected in fibre cement fragments.
#7 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#8 AF: Chrysotile asbestos detected in the form of loose fibre bundles.
#9 ACM: Chrysotile asbestos detected in fibre cement fragments.
#10 No asbestos detected at the reporting limit of 0.001% w/w.*
#11 FA: Chrysotile asbestos detected in bituminous material.
#12 ESDAT Combined with Non-Detect Multiplier of 0.5.
#13 Synthetic mineral fibres detected.
#14 No respirable fibres detected
#15 Organic fibres detected.
#16 ESDAT Combined.
#17 NIL (+)VE
#18 Nil

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

				Polycyclic Aromatic Hydrocarbons																						
				Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bo	Benzo(a)pyrene TEQ (medium	Benzo(a)pyrene TEQ (upper bo	Benzo(b,j)fluoranthene	Benzo(b,k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Carcinogenic PAHs as B(a)P TPI	Naphthalene	Phenanthrene	Pyrene	PAHs (Total)	Total Positive PAHs	Hexachlorobenzene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.10	0.10	0.10	0.10	0.05	0.50	0.50	0.50	0.50		0.10	0.50	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.10	0.50		0.05
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil								0.7[#2]														370					
NEPM 2013 Soil HIL D																					40[#8]				4000[#9]		80
NEPM 2013 Soil HSL D																						NL					
NEPM 2013 Soil HSL D - Sensitive Setting																						NL					
Field ID	**Depth**	**Sample Date**	**Lab**																								
STP01_0.3	0.3	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP02_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP03_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP04_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP05_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP06_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
QS01 - duplicate of STP06_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
QS01A - triplicate of STP06_1.0	1	26/05/2016	147482	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	-	<0.2	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.172[#7]	<0.1	<0.1	<0.1	-	0[#17]	<0.1
STP06_2.0	2	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP07_1.5	1.5	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP08_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP08_2.0	2	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP09_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP09_1.5	1.5	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP10_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP11_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP12_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP12_3.0	3	26/05/2016	502310	<0.5	<0.5	<0.5	2.3	3.1	4.5	4.5	4.5	2.2	-	2	2	2.2	0.6	3.7	<0.5	1.5	4.542[#12]	<0.5	1.5	3.9	25	-	<0.05
STP13_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP13_2.0	2	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP14_1.5	1.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP14_2.5	2.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP15_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP16_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP17_1.0	1	26/05/2016	502310	<0.5	<0.5	0.6	1.7	2.3	3	3.2	3.5	2	-	1.5	1.6	1.7	<0.5	3.5	<0.5	1.1	3.222[#12]	<0.5	1.9	3.6	21.5	-	-
STP17_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.5	1.5	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP19_1.0	1	26/05/2016	502310	<0.5	0.9	1.4	2.9	2.6	3.4	3.7	3.9	1.7	-	1.3	2	2.5	<0.5	6.9	0.6	1.1	3.658[#12]	<0.5	6	6	35.9	-	<0.05
QS02 - duplicate of STP19_1.0	1	26/05/2016	502310	<0.5	<0.5	<0.5	1.5	1.6	2.1	2.4	2.6	1.7	-	0.9	1.3	1.4	<0.5	3	<0.5	0.7	2.393[#12]	<0.5	1.6	3	16.7	-	<0.05
QS02A - triplicate of STP19_1.0	1	26/05/2016	147482	<0.1	0.2	0.5	2	1.7	2.3	2.3	2.4	-	2.6	0.7	-	1.8	<0.1	4.3	<0.1	0.7	2.045[#1]	<0.1	2.3	4.4	-	21	<0.1
STP20_0.8	0.8	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP21_1.0	1	26/05/2016	502310	<0.5	2.8	9.2	22	17	26	26	26	13	-	8.2	13	19	3.1	51	2.4	7.3	25.9[#12]	<0.5 - 0.8	39	44	251.8	-	<0.05
STP21_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.5	1.5	26/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP23_0.6	0.6	27/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP24_0.6	0.6	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP25_0.6	0.6	27/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP26_1.0	1	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP27_0.4	0.4	27/05/2016	502310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP28_1.5	1.5	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

JBS&G

				Polycyclic Aromatic Hydrocarbons																						
				Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bo	Benzo(a)pyrene TEQ (medium	Benzo(a)pyrene TEQ (upper bo	Benzo(b,j)fluoranthene	Benzo(b,k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Carcinogenic PAHs as B(a)P TPI	Naphthalene	Phenanthrene	Pyrene	PAHs (Total)	Total Positive PAHs	Hexachlorobenzene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.10	0.10	0.10	0.10	0.05	0.50	0.50	0.50	0.50		0.10	0.50	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.10	0.50		0.05
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil								0.7[#2]														370					
NEPM 2013 Soil HIL D																					40[#8]				4000[#9]		80
NEPM 2013 Soil HSL D																						NL					
NEPM 2013 Soil HSL D - Sensitive Setting																						NL					
Field ID	**Depth**	**Sample Date**	**Lab**																								
STP29_0.7	0.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP30_0.8	0.8	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP31_0.9	0.9	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP32_2.0	2	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP33_2.0	2	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.6105[#12]	<0.5	<0.5	<0.5	0.8	-	-
STP34_1.5	1.5	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05
STP35_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03 - duplicate of STP35_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03A - triplicate of STP35_1.7	1.7	1/06/2016	147827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP36_1.0	1	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP37_1.5	1.5	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP38_3.0	3	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0.9	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	0.855[#12]	<0.5	0.6	0.9	2.9	-	<0.05
STP41_0.25	0.25	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP42_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP43_0.5	0.5	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP44_1.0	1	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	-
STP45_0.2	0.2	1/06/2016	502876	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21[#16]	<0.5	<0.5	<0.5	<0.5	-	<0.05

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadebaun
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific assess
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies further
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies furthe
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceedenc

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0.5. Some Analytes are missing from th
#2 ACM: Chrysotile amosite and crocidolite asbestos detected in fibre cement fragments.
#3 AF: Amosite and crocidolite asbestos detected in the form of loose fibre bundles.
#4 FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments.
#5 ACM: Chrysotile and amosite asbestos detected in fibre cement fragments.
#6 AF: Chrysotile and amosite asbestos detected in fibre cement fragments.
#7 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#8 AF: Chrysotile asbestos detected in the form of loose fibre bundles.
#9 ACM: Chrysotile asbestos detected in fibre cement fragments.
#10 No asbestos detected at the reporting limit of 0.001% w/w.*
#11 FA: Chrysotile asbestos detected in bituminous material.
#12 ESDAT Combined with Non-Detect Multiplier of 0.5.
#13 Synthetic mineral fibres detected.
#14 No respirable fibres detected
#15 Organic fibres detected.
#16 ESDAT Combined.
#17 NIL (+)VE
#18 Nil

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

				Organochlorine Pesticides																							
				Aldrin	4,4-DDE	Aldrin + Dieldrin (Sum of Total)	Dieldrin	DDD	alpha-BHC	DDT	DDT+DDE+DDD (Sum of Total)	beta-BHC	alpha-Chlordane	Chlordane	delta-BHC	gamma-Chlordane	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	Toxaphene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05		0.05	0.05	0.05	0.05		0.05		0.10	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.00
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil										640																	
NEPM 2013 Soil HIL D						45					3600			530						100			50			2500	160
NEPM 2013 Soil HSL D																											
NEPM 2013 Soil HSL D - Sensitive Setting																											
Field ID	**Depth**	**Sample Date**	**Lab**																								
STP01_0.3	0.3	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP02_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP03_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP04_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP05_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP06_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS01 - duplicate of STP06_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS01A - triplicate of STP06_1.0	1	26/05/2016	147482	<0.1	<0.1	<0.2[#16]	<0.1	<0.1	<0.1	<0.1	<0.3[#7]	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	-
STP06_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP07_1.5	1.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP08_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP08_2.0	2	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP09_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP09_1.5	1.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP10_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP11_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP12_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP12_3.0	3	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP13_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP13_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP14_1.5	1.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP14_2.5	2.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP15_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP16_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP17_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP17_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP18_1.5	1.5	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP19_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS02 - duplicate of STP19_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
QS02A - triplicate of STP19_1.0	1	26/05/2016	147482	<0.1	<0.1	<0.2[#16]	<0.1	<0.1	<0.1	<0.1	<0.3[#7]	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	-
STP20_0.8	0.8	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP21_1.0	1	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP21_2.0	2	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.0	1	26/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP22_1.5	1.5	26/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP23_0.6	0.6	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP24_0.6	0.6	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP25_0.6	0.6	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP26_1.0	1	27/05/2016	502310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP27_0.4	0.4	27/05/2016	502310	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
STP28_1.5	1.5	1/06/2016	502876	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

				Organochlorine Pesticides																							
				Aldrin	4,4-DDE	Aldrin + Dieldrin (Sum of Total	Dieldrin	DDD	alpha-BHC	DDT	DDT+DDE+DDD (Sum of Total)	beta-BHC	alpha-Chlordane	Chlordane	delta-BHC	gamma-Chlordane	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	Toxaphene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05		0.05	0.05	0.05	0.05		0.05		0.10	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.00
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil										640																	
NEPM 2013 Soil HIL D						45					3600			530						100			50			2500	160
NEPM 2013 Soil HSL D																											
NEPM 2013 Soil HSL D - Sensitive Setting																											
Field ID	**Depth**	**Sample Date**	**Lab**																								
STP29_0.7	0.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP30_0.8	0.8	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP31_0.9	0.9	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP32_2.0	2	1/06/2016	502876	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
STP33_2.0	2	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP34_1.5	1.5	1/06/2016	502876	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
STP35_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03 - duplicate of STP35_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QS03A - triplicate of STP35_1.7	1.7	1/06/2016	147827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP36_1.0	1	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP37_1.5	1.5	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP38_3.0	3	1/06/2016	502876	0.08	<0.05	0.15[#12]	0.07	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
STP41_0.25	0.25	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP42_1.7	1.7	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP43_0.5	0.5	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP44_1.0	1	1/06/2016	502876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STP45_0.2	0.2	1/06/2016	502876	<0.05	<0.05	<0.1[#16]	<0.05	<0.05	<0.05	<0.05	<0.15[#7]	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadebaun
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific assess
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies further
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies furthe
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceedenc

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0.5. Some Analytes are missing from th
#2 ACM: Chrysotile amosite and crocidolite asbestos detected in fibre cement fragments.
#3 AF: Amosite and crocidolite asbestos detected in the form of loose fibre bundles.
#4 FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments.
#5 ACM: Chrysotile and amosite asbestos detected in fibre cement fragments.
#6 AF: Chrysotile and amosite asbestos detected in fibre cement fragments.
#7 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#8 AF: Chrysotile asbestos detected in the form of loose fibre bundles.
#9 ACM: Chrysotile asbestos detected in fibre cement fragments.
#10 No asbestos detected at the reporting limit of 0.001% w/w.*
#11 FA: Chrysotile asbestos detected in bituminous material.
#12 ESDAT Combined with Non-Detect Multiplier of 0.5.
#13 Synthetic mineral fibres detected.
#14 No respirable fibres detected
#15 Organic fibres detected.
#16 ESDAT Combined.
#17 NIL (+)VE
#18 Nil

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

				Asbestos										Asbestos						Other
				Approx. Sample Mass	Asbestos from ACM in Soil	Mass ACM	Mass Asbestos in ACM	Asbestos from FA & AF in Soil	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	ACM - Comment	AF - Comment	FA - Comment	Organic Fibres - Comment	Respirable Fibres - Comment	Synthetic Fibres - Comment	% Moisture 103oC
				g	%w/w	g	g	%w/w	g	g	g	g	g	Comment	Comment	Comment	Comment	Comment	Comment	%
EQL																				1.00
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil																				
NEPM 2013 Soil HIL D																				
NEPM 2013 Soil HSL D					0.05			0.001												
NEPM 2013 Soil HSL D - Sensitive Setting																				
Field ID	**Depth**	**Sample Date**	**Lab**																	
STP01_0.3	0.3	26/05/2016	502310	895	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	19
STP02_1.0	1	26/05/2016	502310	857	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	13
STP03_1.0	1	26/05/2016	502310	929	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	14
STP04_1.0	1	26/05/2016	502310	927	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	15
STP05_1.0	1	26/05/2016	502310	729	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	21
STP06_1.0	1	26/05/2016	502310	632	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	19
QS01 - duplicate of STP06_1.0	1	26/05/2016	502310	786	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	16
QS01A - triplicate of STP06_1.0	1	26/05/2016	147482	683	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	20
STP06_2.0	2	26/05/2016	502310	807	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	21
STP07_1.5	1.5	26/05/2016	502310	703	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	22
STP08_1.0	1	26/05/2016	502310	835	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	17
STP08_2.0	2	26/05/2016	502310	760	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	17
STP09_1.0	1	26/05/2016	502310	692	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	17
STP09_1.5	1.5	26/05/2016	502310	596	0.0587	2.331	0.3496	0	0	0	0	0	0	1 #5	1 #18	1 #18	1 #15	1 #14	1 #18	22
STP10_1.0	1	26/05/2016	502310	728	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	16
STP11_1.0	1	26/05/2016	502310	779	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	15
STP12_2.0	2	26/05/2016	502310	867	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	13
STP12_3.0	3	26/05/2016	502310	901	0	0	0	0.0001	0	0	0.0007	0.0007	0.0007	1 #18	1 #10	1 #18	1 #15	1 #14	1 #18	16
STP13_1.0	1	26/05/2016	502310	712	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	17
STP13_2.0	2	26/05/2016	502310	873	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	18
STP14_1.5	1.5	26/05/2016	502310	781	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	17
STP14_2.5	2.5	26/05/2016	502310	843	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	14
STP15_1.0	1	26/05/2016	502310	827	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	15
STP16_1.0	1	26/05/2016	502310	847	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	15
STP17_1.0	1	26/05/2016	502310	929	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	8.6
STP17_2.0	2	26/05/2016	502310	978	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	13
STP18_1.0	1	26/05/2016	502310	829	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	15
STP18_1.5	1.5	26/05/2016	502310	813	0	0	0	0.0001	0	0	0.0008	0.0008	0.0008	1 #18	1 #8	1 #18	1 #15	1 #14	1 #18	22
STP19_1.0	1	26/05/2016	502310	1154	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	11
QS02 - duplicate of STP19_1.0	1	26/05/2016	502310	840	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	11
QS02A - triplicate of STP19_1.0	1	26/05/2016	147482	816	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	12
STP20_0.8	0.8	26/05/2016	502310	1009	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	16
STP21_1.0	1	26/05/2016	502310	844	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	11
STP21_2.0	2	26/05/2016	502310	982	0	0	0	0.0055	0	0	0.0554	0.0543	0.0543	1 #18	1 #8	1 #18	1 #15	1 #14	1 #18	13
STP22_1.0	1	26/05/2016	502310	982	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	13
STP22_1.5	1.5	26/05/2016	502310	998	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	14
STP23_0.6	0.6	27/05/2016	502310	894	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	10
STP24_0.6	0.6	27/05/2016	502310	840	0	0	0	0.0022	0	0	0.0916	0.0183	0.0183	1 #18	1 #6	1 #18	1 #15	1 #14	1 #18	10
STP25_0.6	0.6	27/05/2016	502310	859	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	14
STP26_1.0	1	27/05/2016	502310	668	0	0	0	0	0	0	0	0	0	1 #18	1 #18	1 #18	1 #15	1 #14	1 #18	24
STP27_0.4	0.4	27/05/2016	502310	1012	0	0	0	0.0005	0	0	0.0048	0.0048	0.0048	1 #18	1 #3	1 #18	1 #15	1 #14	1 #18	14
STP28_1.5	1.5	1/06/2016	502876	630	0.0294	1.233	0.185	0	0	0	0	0	0	1 #9	1 #18	1 #18	1 #15	1 #14	1 #18	14

NSW ICAC EXHIBIT

Table B: Imported Fill in Stockpiles Analytical Results
Project Number: 50648
Project Name: Riverstone Parade Additional Works

				Asbestos										Asbestos						Other
				Approx. Sample Mass	Asbestos from ACM in Soil	Mass ACM	Mass Asbestos in ACM	Asbestos from FA & AF in Soil	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	ACM - Comment	AF - Comment	FA - Comment	Organic Fibres - Comment	Respirable Fibres - Comment	Synthetic Fibres - Comment	% Moisture 103oC
				g	%w/w	g	g	%w/w	g	g	g	g	g	Comment	Comment	Comment	Comment	Comment	Comment	%
EQL																				1.00
NEPM 2013 EILs/ESL Commercial and Industrial, Aged Fine Soil																				
NEPM 2013 Soil HIL D																				
NEPM 2013 Soil HSL D					0.05			0.001												
NEPM 2013 Soil HSL D - Sensitive Setting																				
Field ID	**Depth**	**Sample Date**	**Lab**																	
STP29_0.7	0.7	1/06/2016	502876	1075	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	13
STP30_0.8	0.8	1/06/2016	502876	1006	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	9.2
STP31_0.9	0.9	1/06/2016	502876	870	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	20
STP32_2.0	2	1/06/2016	502876	980	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	16
STP33_2.0	2	1/06/2016	502876	831	0	0	0	0.0133	0.5525	0.1105	0	0	0.1105	1[#18]	1[#18]	1[#11]	1[#15]	1[#14]	1[#18]	18
STP34_1.5	1.5	1/06/2016	502876	799	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	12
STP35_1.7	1.7	1/06/2016	502876	847	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	11
QS03 - duplicate of STP35_1.7	1.7	1/06/2016	502876	1012	0	0	0	0.0069	0.1742	0.0697	0	0	0.0697	1[#18]	1[#18]	1[#4]	1[#15]	1[#14]	1[#18]	11
QS03A - triplicate of STP35_1.7	1.7	1/06/2016	147827	858	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	9.8
STP36_1.0	1	1/06/2016	502876	930	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	14
STP37_1.5	1.5	1/06/2016	502876	660	0.2181	9.596	1.439	0	0	0	0	0	0	1[#5]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	17
STP38_3.0	3	1/06/2016	502876	641	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#13]	23
STP41_0.25	0.25	1/06/2016	502876	816	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	15
STP42_1.7	1.7	1/06/2016	502876	963	0.055	3.529	0.5293	0	0	0	0	0	0	1[#2]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	10
STP43_0.5	0.5	1/06/2016	502876	1035	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	8.6
STP44_1.0	1	1/06/2016	502876	752	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	17
STP45_0.2	0.2	1/06/2016	502876	1016	0	0	0	0	0	0	0	0	0	1[#18]	1[#18]	1[#18]	1[#15]	1[#14]	1[#18]	8.7

Env Stds Comments

#1:ESLs are of moderate reliability.
#2:ESLs are of low reliability.
#3:ESLs are of moderate reliability. To obtain F1 subtract the sum of BTEX from C6-C10.
#4:Key limitations of HSL should be referred to prior to application in Friebel and Nadebaun
#5:TV adopted from Chromium (VI)
#6:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#7:Refer to HSL and soil saturation concentration limit.
#8:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#9:TV maybe be multiplied by a factor to account for biodegradation of vapour
#10:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific assess
#11:To obtain F1 subtract the sum of BTEX from C6-C10.
#12:To obtain F2 subtract naohthalene from >C10-C16.
#13:Sensitive setting HSL D Silt 0m to <1m criteria adopted. Exceedence quantifies further
#14:Sensitive setting HSL D Sand 0m to <1m criteria adopted. Exceedence quantifies furthe
#15:Sensitive setting HSL D Sand 0m to <1m criteria adopted. NL - Not Limiting. Exceedenc

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0.5. Some Analytes are missing from th
#2 ACM: Chrysotile amosite and crocidolite asbestos detected in fibre cement fragments.
#3 AF: Amosite and crocidolite asbestos detected in the form of loose fibre bundles.
#4 FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments.
#5 ACM: Chrysotile and amosite asbestos detected in fibre cement fragments.
#6 AF: Chrysotile and amosite asbestos detected in fibre cement fragments.
#7 ESDAT Combined. Some Analytes are missing from this Combined Compound.
#8 AF: Chrysotile asbestos detected in the form of loose fibre bundles.
#9 ACM: Chrysotile asbestos detected in fibre cement fragments.
#10 No asbestos detected at the reporting limit of 0.001% w/w.*
#11 FA: Chrysotile asbestos detected in bituminous material.
#12 ESDAT Combined with Non-Detect Multiplier of 0.5.
#13 Synthetic mineral fibres detected.
#14 No respirable fibres detected
#15 Organic fibres detected.
#16 ESDAT Combined.
#17 NIL (+)VE
#18 Nil

Appendix B Test Pit Logs

NSW ICAC EXHIBIT

JBS&G

JB-01

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, brown, homogeneous, dry, stiff, low plasticity, with inclusions of gravels	JB-01_0.0-0.15 PID = 0.3 ppm	10L AQ. No odours, staining or ACM observed
		0.20		SHALE	SHALE, grey with red/brown mottles		
	0.5					JB-01_0.5-0.6 PID = 0.1 ppm	
	1.0						
		1.00			Test Pit JB-01 terminated at 1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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NSW ICAC EXHIBIT

JBS&G

JB-02

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, brown, heterogeneous, dry, low plasticity, with inclusions of gravels	JB-02_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
	0.5	0.30		Fill	Fill - Reworked Clay, light brown, heterogeneous, medium plasticity, firm/stiff, dry, with inclusions of gravels	JB-02_0.5-0.6 PID = 0.4 ppm; JB-02_0.3-0.9	
	1.0	0.90		Fill	Fill - Reworked Clay, grey, heterogeneous, medium plasticity, moist, with inclusions of tree roots, gravels	JB-02_1.0-1.1 PID = 0.3 ppm; JB-02_0.9-1.5	
	1.5	1.50		Fill	Fill - Reworked Clay, red brown, heterogeneous, medium plasticity, moist, with inclusions of tree roots, gravels	JB-02_1.5-1.6 PID = 0.2 ppm	
	2.0	2.00		SHALE	SHALE, red/brown with grey mottles, dry	JB-02_2.0-2.1 PID = 0 ppm	
	2.5	2.30			Test Pit JB-02 terminated at 2.3m		
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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NSW ICAC EXHIBIT

JBS&G

JB-03

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				CL-ML	Silty Clay, brown, heterogeneous, dry, low plasticity, with inclusions of gravels	JB-03_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
		0.20		SHALE	SHALE, red/brown, dry		
	0.5					JB-03_0.5-0.6 PID = 0 ppm	
	1.0						
		1.00			Test Pit JB-03 terminated at 1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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JBS&G

JB-04

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML-CL	Clayey Silt, with large angular shale gravels, brown, heterogeneous, dry, loose	JB-04_0.0-0.15 PID = 0.7 ppm	No odours, staining or ACM observed
		0.15		SHALE	SHALE, red/brown, homogeneous, dry	JB-04_0.15-0.25 PID = 0.1 ppm	
	0.5						
	1.0						
		1.00			Test Pit JB-04 terminated at 1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

JB-05

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, brown, homogeneous, dry, loose, fine, with inclusions of grass roots	JB-05_0.0-0.15 PID = 0.3 ppm	No odours, staining or ACM observed
	1.0	0.60		SHALE	SHALE, red/brown with cream mottles, dry, very hard	JB-05_0.6-0.7 PID = 0.2 ppm	
		1.00			Test Pit JB-05 terminated at 1m		

1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-06

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, brown, homogeneous, dry, loose, fine, with inclusions of grass roots	JB-06_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
		0.50		SHALE	SHALE, red/brown with cream mottles, dry, hard	JB-06_0.5-0.6 PID = 0.3 ppm	
		0.70			Test Pit JB-06 terminated at 0.7m		Refusal on rock

1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-07

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			CL-ML	Silty Clay, heterogeneous, dry, no plasticity, stiff, with inclusions of gravels	JB-07_0.0-0.15 PID = 0.2 ppm	No odours, staining or ACM observed
						JB-07_0.5-0.6 PID = 0 ppm	
		0.60		SHALE	SHALE, cream with red/brown mottles, dry, very hard		
		0.70			Test Pit JB-07 terminated at 0.7m		Refusal on rock

1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-08

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Sand, Crushed Sandstone with sandstone cobbles, white/cream, loose, dry	JB-08_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
	0.5	0.30		CL-ML	Silty Clay, red/brown, homogeneous, dry, medium plasticity	JB-08_0.5-0.6 PID = 0.4 ppm; JB-08_0.3-0.9	
	1.0	0.90		SHALE	SHALE, grey with brown mottles, dry, hard	JB-08_0.9-1.0 PID = 0.3 ppm	
		1.20			Test Pit JB-08 terminated at 1.2m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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JBS&G

JB-09

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt, wtith minor gravels, homogeneous, loose, dry, fine	JB-09_0.0-0.15 PID = 0.2 ppm	No odours, staining or ACM observed
	0.5	0.40		SHALE	SHALE, light grey with brown mottles, dry, hard	JB-09_0.5-0.6 PID = 0.1 ppm	
		0.80			Test Pit JB-09 terminated at 0.8m		Refusal on rock
	1.0						
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

JB-10

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML	Silt, wtith shale cobbles, medium sized, angular	JB-10_0.0-0.15 PID = 0.3 ppm	No odours, staining or ACM observed
	1.0	0.60		CL	Clay, red/brown with grey mottles, hard, low plasticity, dry	JB-10_0.6-0.7 PID = 0.2 ppm	
	1.5	1.10		CL	Clay, red/brown with grey mottles, firm, medium plasticity, dry	JB-10_1.1-1.2 PID = 0 ppm	
	2.0	1.90		SHALE	SHALE, red/brown with cream mottles, dry, hard	JB-10_1.9-2.0 PID = 0.1 ppm	
	2.5	2.20			Test Pit JB-10 terminated at 2.2m		
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

JB-11

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt, wtith minor gravels and shale cobbles, medium sized, angular, loose, dry,	JB-11_0.0-0.15 PID = 0.4 ppm	No odours, staining or ACM observed
		0.20		CL-ML	Silty Clay, red/brown, homogeneous, dry, low/medium plasticity, firm/stiff		
	0.5					JB-11_0.2-0.7	
						JB-11_0.5-0.6 PID = 0.7 ppm	
		0.70		SHALE	SHALE, red/brown with cream mottles, dry, hard		
	1.0						
		1.00			Test Pit JB-11 terminated at 1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-12

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Sand, Crushed Sandstone with small to medium sandstone cobbles, angular	JB-12_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
		0.30		CL-ML	Silty Clay, dark brown, homogeneous, dry, low plasticity, stiff		
	0.5					JB-12_0.5-0.6 PID = 0.2 ppm	
	1.0						
		1.00		SHALE	SHALE, light grey with red/brown mottles, dry, hard		
		1.30			Test Pit JB-12 terminated at 1.3m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-13

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, brown, homogeneous, dry, medium dense, with inclusions of minor gravels	JB-13_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
	1.0	0.80		SHALE	SHALE, brown/orange, dry, hard	JB-13_0.8-0.9 PID = 0.3 ppm	
	1.5	1.10			Test Pit JB-13 terminated at 1.1m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-14

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt with minor clay, brown, homorgeneous, dry, loose, with inclusions of minor gravels	JB-14_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
	0.5	0.40		CL-ML	Silty Clay, brown, homogeneous, dry, no plasticity, stiff	JB-14_0.5-0.6 PID = 0.3 ppm	
	1.0	0.80		SHALE	SHALE, light grey with brown mottles, homogeneous, dry, hard	JB-14_0.8-0.9 PID = 0.2 ppm	
	1.5	1.10			Test Pit JB-14 terminated at 1.1m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-15

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt wtith minor gravels and shale cobbles, brown, loose, dry, homogeneous	JB-15_0.0-0.15 PID = 0 ppm	No odours, staining or ACM observed
	0.5	0.20		CL-ML	Silty Clay, red/brown, homogeneous, dry, low plasticity	JB-15_0.2-0.7 PID = 0.1 ppm; JB-15_0.5-0.6 PID = 0.1 ppm	
	1.0	0.70		SHALE	SHALE, red/brown with cream mottles, dry, hard		
		1.00			Test Pit JB-15 terminated at 1m		

Depth (mbgs): 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-16

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.9
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML	Silt wtith minor gravels and shale cobbles medium to small and angular, loose, dry	JB-16_0.0-0.15 PID = 0.2 ppm	No odours, staining or ACM observed
		0.50		SHALE	SHALE, red/brown with cream mottles, homogeneous, dry, hard	JB-16_0.5-0.6 PID = 0.3 ppm	
	1.0	0.90			Test Pit JB-16 terminated at 0.9m		Refusal on rock
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-17

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt wtith minor clay, brown, homogeneous, loose/ medium dense, dry, with inclusions of minor gravels	JB-17_0.0-0.15 PID = 0 ppm	No odours, staining or ACM observed
	0.5	0.30		CL-ML	Silty Clay, red/brown, homogeneous, dry, low/medium plasticity	JB-17_0.5-0.6 PID = 0.1 ppm	
	1.0	0.70		SHALE	SHALE, brown with light grey mottles, dry, hard		
	1.5	1.00			Test Pit JB-17 terminated at 1m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-18

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Reworked Silty Clay, brown with red/brown and white mottles, heterogeneous	JB-18_0.0-0.15 PID = 0.8 ppm	No odours, staining or ACM observed
	1.0	0.60		SHALE	SHALE, red/brown with white/light grey mottles, dry, hard	JB-18_0.6-0.7 PID = 0.2 ppm	
		1.00			Test Pit JB-18 terminated at 1m		

1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-19

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, with minor gravels, brown, homogeneous, dry, medium dense	JB-19_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
	1.0	0.60		SHALE	SHALE, white with brown mottles, dry, hard	JB-19_0.6-0.7 PID = 0.3 ppm	
		1.00			Test Pit JB-19 terminated at 1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-20

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt wtith minor clay, brown, homogeneous, loose/ medium dense, dry, with inclusions of minor gravels	JB-20_0.0-0.15 PID = 0.9 ppm	No odours, staining or ACM observed
	0.5	0.40		CL-ML	Silty Clay, red/brown, homogeneous, dry, low plasticity, stiff	JB-20_0.5-0.6 PID = 0.5 ppm	
	1.0	0.80		SHALE	SHALE, brown with cream mottles, dry, hard		
		1.10			Test Pit JB-20 terminated at 1.1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-21

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, homogeneous, dry, medium dense, with inclusions of minor gravels, grass roots	JB-21_0.0-0.15 PID = 0.4 ppm	No odours, staining or ACM observed
		0.50		CL-ML	Silty Clay, red/brown, homogeneous, dry, medium plasticity	JB-21_0.5-0.6 PID = 0.2 ppm	
	1.0	0.70		CL-ML	Silty Clay, red/brown with light grey mottles, homogeneous, dry, medium plasticity		
	1.5	1.50		SHALE	SHALE, light grey with red/brown mottles, dry, hard	JB-21_1.5-1.6 PID = 0.9 ppm	
	2.0	1.80			Test Pit JB-21 terminated at 1.8m		
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

JB-22

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, brown, heterogeneous, dry, loose/medium dense, with inclusions of gravels	JB-22_0.0-0.15 PID = 0.3 ppm	No odours, staining or ACM observed
		0.50		SHALE	SHALE, cream with brown mottles, dry, hard	JB-22_0.5-0.6 PID = 0.2 ppm	
		0.80			Test Pit JB-22 terminated at 0.8m		Refusal on rock

1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

JB-23

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML	Silt with minor clay, brown, homogeneous, dry, with inclusions of minor gravels	JB-23_0.0-0.15 PID = 0.8 ppm	No odours or ACM observed
	1.0 1.5	0.50		CL	Clay, light grey with brown mottles, low plasticity, stiff, black staining where tree roots are	JB-23_0.5-0.6 PID = 0.6 ppm	
	2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5	1.50			Test Pit JB-23 terminated at 1.5m		

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NSW ICAC EXHIBIT

JBS&G

JB-24

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				ML	Silt, wtith minor clay, brown, homogeneous, dry, loose, with inclusions of minor gravels	JB-24_0.0-0.15 PID = 0.3 ppm	No odours, staining or ACM observed
	0.5	0.30		CL-ML	Silty Clay, red/brown, homogeneous, dry, no plasticity	JB-24_0.5-0.6 PID = 0.5 ppm	
	1.0	0.80		SHALE	SHALE, brown with light grey mottles, homogeneous, dry, hard		
		1.10			Test Pit JB-24 terminated at 1.1m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-25

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.9
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML-CL	Clayey Silt, brown, homogeneous, dry, medium dense, with inclusions minor of gravels	JB-25_0.0-0.15 PID = 0.1 ppm	No odours, staining or ACM observed
		0.60		SHALE	SHALE, light grey with brown mottles, dry, hard	JB-25_0.5-0.6 PID = 0.4 ppm	
	1.0	0.90			Test Pit JB-25 terminated at 0.9m		Refusal on rock
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

JB-26

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 10/05/2016
Logged By: Julia Nicholson
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			ML	Silt wtith minor clay, red/brown, homogeneous, dry, medium dense	JB-26_0.0-0.15 PID = 0.1 ppm JB-26_0.5-0.6 PID = 0.4 ppm	No odours, staining or ACM observed
	1.0	0.90		SHALE	SHALE, light grey with brown mottles, dry, hard	JB-26_0.9-1.0 PID = 0.2 ppm	
		1.20			Test Pit JB-26 terminated at 1.2m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP01

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.75
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Sandy Clay, light grey and brown, dry, heterogeneous, stiff, low plasticity, with inclusions of gravels (shale), brick		No odours, staining or ACM observed
		0.15		Fill	Fill - Sandy Clay, orange brown, damp, heterogeneous, firm, medium plasticity, with inclusions of shale	STP01_0.3	
	0.5	0.45		ML	Silt, brown, homogeneous, damp, fine		
		0.75			Test Pit STP01 terminated at 0.75m		
	1.0						
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP02

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, grey, heterogeneous, dry, low plasticity, with inclusions of shale gravels		
		0.10		Fill	Fill - Silty Clay, orange/brown and grey, heterogeneous, damp, medium plasticity, with inclusions of shale gravels		No odours, staining or ACM observed
	0.5						
	1.0					STP02_1.0	
	1.5						
	2.0						
		2.00		ML	Silt, brown, homogeneous, damp, fine		
		2.30			Test Pit STP02 terminated at 2.3m		
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

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STP03

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0			Fill	Fill - Silty Clay, grey with orange mottles, heterogeneous, damp, medium plasticity, with inclusions of shale gravels	STP03_1.0	No odours, staining or ACM observed
		2.00		CL-ML	Silty Clay, orangey brown, homogenous, stiff, low plasticity		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.30			Test Pit STP03 terminated at 2.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP04

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Gravelly Clay, brown, damp, low plasticity, soft to firm, with inclusions of shale, and inclusions of concrete, brick on surface	STP04_1.0	No odours, staining or ACM observed
	2.0	1.90		CL	Clay, orange/red/brown, homogeneous, medium plasticity, stiff		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.20			Test Pit STP04 terminated at 2.2m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP05

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0			Fill	Fill - Gravelly Clay, brown, damp, low plasticity, soft to firm, with inclusions of trace glass, brick, red plastic tape, concrete	STP05_1.0	No odours, staining or ACM observed
	2.5	2.20		CL	Clay, orange/red/brown, homogeneous, medium plasticity, firm		
	3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.50			Test Pit STP05 terminated at 2.5m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP06

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Gravelly Clay, with shale gravels, orange/brown, heterogeneous, damp, with inclusions of brick, plastic pipe on surface	STP06_1.0	No odours, staining or ACM observed
	1.5, 2.0, 2.5, 3.0	1.20		Fill	Fill - Gravelly Silty Clay, brown, heterogeneous, with inclusions of glass, brick, plastic pipe, gravels, sandstone, timber	STP06_2.0	
	3.5, 4.0, 4.5, 5.0, 5.5	3.20			Test Pit STP06 terminated at 3.2m		EOH - hole collapsing in on itself

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP07

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Gravelly Clay, with shale gravels, orange/brown, heterogeneous, damp, with inclusions of brick, plastic pipe on surface		No odours, staining or ACM observed
	1.5, 2.0, 2.5, 3.0	1.00		Fill	Fill - Silty Clay, dark brown, heterogeneous, sticky, damp, with inclusions of brick, tiles, sticks, ceramic pipe	STP07_1.5	
		3.00		CL	Clay, orange/red, homogeneous, low to medium plasticity, stiff		
	3.5, 4.0, 4.5, 5.0, 5.5	3.30			Test Pit STP07 terminated at 3.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP08

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 5.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0			Fill	Fill - Gravelly SIlty Sandy Clay, dark brown, heterogeneous, sticky, with inclusions of concrete, ACM, brick, tiles, timber, terracotta pipe, plastic, wires encased in plastic	STP08_1.0	No odours, staining or ACM observed
						STP08_2.0	ACM, large sheet on concrete block 30 x 40 cm (plus small frags which fell off). No odours or staining
		5.00		CL	Clay, grey with red mottles, homogeneous, firm		
	5.5	5.30			Test Pit STP08 terminated at 5.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP09

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Gravelly Clay, brown, heterogeneous, with inclusions of bricks, plastic, timber	STP09_1.0	No odours, staining or ACM observed
	2.0, 2.5	1.50		Fill	Rubbish and soil, including timber, testiles/clothing, plastic bags, brick, concrte, bottles, toys	STP09_1.5	
		2.50		CL	Clay, red/brown, stiff, medium plasticity		
	3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.80			Test Pit STP09 terminated at 2.8m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP10

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.4
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Gravelly Clay, brown, heterogeneous, damp, with inclusions of bricks	STP10_1.0	No odours, staining or ACM observed
	2.0	1.90		ML-CL	Clayey Silt, topsoil, dark brown		
		2.10		CL	Clay, red/brown, homogeneous, damp, stiff, medium plasticity		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.40			Test Pit STP10 terminated at 2.4m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP11

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0			Fill	Fill - Gravelly Silty Clay, brown, heterogeneous, dry-damp, with inclusions of shale, wire, plastic sheet, bricks	STP11_1.0	possible ACM fragment, no odours or staining
		2.10		ML-CL	Clayey Silt, topsoil, dark brown		
	2.5	2.20		CL	Clay, red/brown, homogeneous, stiff, medium plasticity		
	3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.50			Test Pit STP11 terminated at 2.5m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP12

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 4.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Clay, orange, heterogeneous, dry, with inclusions of bricks, concrete		No odours, staining or ACM observed
		0.20		Fill	Fill - Silty Clayey Sand, brown, heterogeneous, damp to moist, with inclusions of concrete, bricks, asphalt/slag, sandstone, large concrete rubble, tiles		
	0.5						
	1.0						
	1.5						
	2.0					STP12_2.0	
	2.5						
	3.0					STP12_3.0	
	3.5						
	4.0						
		4.00		CL	Clay), red/brown, homogeneous, stiff, medium plasticity		Water seepage at base of excavation (above natural)
		4.30			Test Pit STP12 terminated at 4.3m		
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP13

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Clayey Silty Sand, dark brown, heterogeneous, with inclusions of bricks, tiles, timber, sandstone, concrete, wire, shale, plastic, black irrigation tubing, string, glass	STP13_1.0	No odours, staining or ACM observed
	1.5, 2.0, 2.5	1.40		Fill	Fill - Silty Clay, dark brown, heterogeneous, with inclusions of bricks, tiles, timber, sandstone concrete, wire, shae, plasti, black irrigation tubing, string, glass	STP13_2.0	ACM fragment, no odours or staining
	3.0	2.90		ML-CL	Clayey Silt, yellow brown, fine, soft to firm		
	3.5, 4.0, 4.5, 5.0, 5.5	3.20			Test Pit STP13 terminated at 3.2m		

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STP14

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0, 2.5			Fill	Fill - Gravelly Silty Clay, dark brown, heterogeneous, with inclusions of timber, bricks, PVC, concrete, sandstone	STP14_1.5 STP14_2.5	No odours, staining or ACM observed
	3.0	2.70		CL	Clay, orange/brown, homogeneous, stiff, low plasticity		
	3.5, 4.0, 4.5, 5.0, 5.5	3.00			Test Pit STP14 terminated at 3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP15

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.65
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Sandy Silty Clay, dark brown, heterogeneous, with inclusions of ceramic pipe, concrete, plastic sheet, slate	STP15_1.0	No odours, staining or ACM observed
	1.5	1.35		CL	Clay, orange/brown, homogeneous, very stiff, low plasticity		
	2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	1.65			Test Pit STP15 terminated at 1.65m		

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STP16

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0			Fill	Fill - Silty Clay, dark brown, heterogeneous, damp, with inclusions of bricks, concrete, plastic rubber, shale fragments, sticks	STP16_1.0	No odours, staining or ACM observed
		2.00		CL	Clay, red/brown, stiff		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.30			Test Pit STP16 terminated at 2.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP17

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Gravelly Silty Clay, dark brown, heterogeneous, damp, with inclusions of bricks, tiles, concrete, plastic	STP17_1.0	No odours, staining or ACM observed
	1.5, 2.0	1.20		Fill	Fill - Clayey Silt, orangey grey, heterogeneous, damp	STP17_2.0	
	2.5	2.30		CL-ML	Silty Clay, orange brown, homogeneous, low plasticity, soft		
	3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.60			Test Pit STP17 terminated at 2.6m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP18

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Gravelly Silty Clay, brown, heterogeneous, with inclusions of slate, timber, brick	STP18_1.0	No odours, staining or ACM observed
	2.0, 2.5	1.50		Fill	Fill - Clay, brown slop with timber and plastic, brick	STP18_2.5	
	3.0	2.70		CL	Clay, red grey, stiff		
	3.5, 4.0, 4.5, 5.0, 5.5	3.00			Test Pit STP18 terminated at 3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP19

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5 1.0 1.5 2.0			Fill	Fill - Sandy Silt, brown, heterogeneous, with inclusions of glass, ash, brick, sandstone, steel (rusted), slate, PVC, plastic bag, timber, ceramic pipe, burnt wood	STP19_1.0	ACM fragments (~4 small pieces of varying size), no odours or staining
		2.00		CL	Clay, orange/red brown, homogeneous, damp, stiff, medium plasticity		Water seepage at base of excavation (above natural)
	2.5 3.0 3.5 4.0 4.5 5.0 5.5	2.30			Test Pit STP19 terminated at 2.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP20

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Clay reworked, red/grey/yellow mottled, medium plasticity, soft to firm		No odours, staining or ACM observed
	1.0					STP20_0.8	
		1.30		CL-ML	Silty Clay, top soil, dark brown, damp, with roots from grass		
	1.5	1.40		CL-ML	Silty Clay, yellow grey, homogeneous, damp, low to medium plasticity, soft		
		1.60			Test Pit STP20 terminated at 1.6m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP21

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0, 2.5			Fill	Fill - Silty Sand, dark brown, heterogeneous, slightly damp, with inclusions of brick, glass, asphalt, sandstone, timber, tiles, concrete, clay chunks.	STP21_1.0 STP21_2.0	No odours, staining or ACM observed
	3.0	2.50		Fill	Fill - Silty Sand, dark brown, heterogeneous, moist, with inclusions of brick, glass, asphalt, sandstone, timber, tiles, concrete, clay chunks.		
	3.5, 4.0, 4.5, 5.0, 5.5	3.00			Test Pit STP21 terminated at 3m		EOH - hole collapsing in on itself

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP22

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 26/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Sandstone rubble and a Sandy SIlty Clay, brown, heterogeneous, with inclusions of sandstone	STP22_1.0	No odours, staining or ACM observed
	1.5	1.40		Fill	Fill - Gravelly Silty Clay, brown, heterogeneous, with inclusions of sandstone	STP22_1.5	
		1.80		CL-ML	Silty Clay, top soil, dark brown		
	2.0	1.95		CL-ML	Silty Clay, red/ orange brown, homogeneous, stiff, medium plasticity		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.30			Test Pit STP22 terminated at 2.3m		

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JBS&G

STP23

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 27/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Gravelly Silt, brown, heterogeneous, with inclusions of slate, plastic bag, brick	STP23_0.6	No odours, staining or ACM observed
	1.0	0.90		ML	Silt, top soil, brown, with inclusions of roots		
		1.10		ML	Silt, orange brown, homogeneous, fine grained		
	1.5	1.20			Test Pit STP23 terminated at 1.2m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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STP24

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 27/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Sandy Silt, brown, heterogeneous, dry, with inclusions of bricks, ceramics, tiles, plastic sheet, slate	STP24_0.6	No odours, staining or ACM observed
	1.0	1.00		ML	Silt, top soil, brown, homogeneous, damp, with inclusions of roots		
		1.20		CL-ML	Silty Clay, orange brown		
		1.30			Test Pit STP24 terminated at 1.3m		
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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NSW ICAC EXHIBIT

JBS&G

STP25

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 27/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Silty Clay, brown, heterogeneous, dry to damp, low plasticity, with inclusions of bricks, shale, sticks, ceramic	STP25_0.6	No odours, staining or ACM observed
		1.50		ML	Silt/weathered shale, grey, fine, homogeneous		
	2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	1.80			Test Pit STP25 terminated at 1.8m		

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STP26

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 27/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Clayey Silt, brown, with inclusions of roots/degraded hay, brick, sandstone, shale	STP26_1.0	No odours, staining or ACM observed
		1.50		CL	Clay, orange brown, homogeneous, soft, medium plasticity		
	2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	1.80			Test Pit STP26 terminated at 1.8m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP27

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 27/05/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.4
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Clay, grey/brown/white, heterogeneous, with inclusions of brock, concrete, ACM	STP27_0.4	Multiple ACM fragments (>7) at 0.3-0.5 m bgs, no staining or odours
	1.0	0.50		Fill	Fill - Concrete slabs and chunks with Silty Clay, brown		ACM fragments still visible, no staining or odours
	1.5	1.50		Fill	Fill - building rubbish, timber, bricks, tiles, fabric, concrete, foam, wire, plastic, rio, carpet, fabric mesh, matress and a white dust.		
	2.0						
	2.5						
	3.0						Saturated at 2.9 m bgs
		3.25		CL-ML	Silty Clay, red/grey, solid		
	3.5	3.40			Test Pit STP27 terminated at 3.4m		
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP28

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, red/grey, heterogeneous, dry, hard		No odours, staining or ACM observed
		0.20		Fill	Fill - Clayey Sandy Silt, brown, heterogeneous, with inclusions of concrete, timber, brick, sticks, plastic bottle, ball, tiles, clay chunks, backpack, large tree stump, fabric, metal sheet, wire.		
	0.5						
	1.0						
	1.5					STP28_1.5	
	2.0						
		2.20		CL-ML	Silty Clay, red/orange and grey, homogeneous, firm, medium plasticity		
	2.5						
		2.60			Test Pit STP28 terminated at 2.6m		
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP29

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, brown/red, heterogeneous, dry, low plasticity, stiff, with inclusions of brick		
		0.20		Fill	Fill - Clayey Sandy Silt, brown, heterogeneous, with inclusions of ACM, brick, sandstone, timber, shale, glass		
	0.5						
						STP29_0.7	ACM fragments (2 - 1 large and 1 small), no staining or odours
	1.0						
		1.00		Fill	Fill - Sand, Crushed Sandstone, orangey/cream		
		1.20		CL-SC	Sandy Clay, red/orange and grey, heterogeneous, dry, hard/stiff, low plasticity		
	1.5	1.40		SHALE	SHALE, orange/red, hard, dry		
		1.50			Test Pit STP29 terminated at 1.5m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP30

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.65
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, red/orange brown, heterogeneous, dry, stiff, low plasticity		No odours, staining or ACM observed
	0.5	0.40		Fill	Fill - Silty Clay, orange, heterogeneous, damp, soft to firm, medium plasticity, with inclusions of trace brick, timber, sticks	STP30_0.8	
	1.0	1.00		Fill	Fill - Silty Clay with trace sand, brown, heterogeneous, with inclusions of rocks and sticks		
	1.5	1.35		CL-ML	Silty Clay, red/orange brown, low plasticity, stiff, with inclusions of trace sand		
		1.55		SHALE	SHALE, red/orange brown		
		1.65			Test Pit STP30 terminated at 1.65m		
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

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NSW ICAC EXHIBIT

JBS&G

STP31

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, red/orange brown, heterogeneous, dry, stiff, low plasticity		No odours, staining or ACM observed
	0.5	0.30		Fill	Fill - Silty Clay with trace sand, brown with grey/orange mottles, heterogeneous, with inclusions of trace concrete, ceramic pipe		
	1.0	0.80		Fill	Fill - Gravelly Clay, dark brown and grey orange, heterogeneous, including timber, gravels	STP31_0.9	
	1.5						
	2.0	1.60		Fill	Fill - Gravelly Clay and timber, grey/brown, heterogeneous, including timber, gravels, crushed plastic pipe, alluminium, tiles, plastic scraps, cables		
	2.5						Saturated at 2.5 m bgs
	3.0						
		3.20			Test Pit STP31 terminated at 3.2m		EOH - full reach of backhoe
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP32

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.9
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Silty Clay, grey/brown, heterogeneous, dry, stiff, low plasticity		No odours, staining or ACM observed
	0.5	0.30		Fill	Fill - Sandy Clay, red/orange, heterogeneous, dry, medium plasticity, firm		
	1.0	0.50		Fill	Fill - Silty Clay with shale, grey, heterogeneous, dry, stiff		
	1.5	1.10		Fill	Fill - Gravelly Silty Clay, dark brown, heterogeneous, dry to damp, with inclusions of roots, plastic bag, tiles (trace), glass, brick, trace green fabric mesh, black plastic, gravels, sticks, trace orange clay lumps		
	2.0					STP32_2.0	
	2.5						
	3.0						
	3.5						
	4.0	3.90			Test Pit STP32 terminated at 3.9m		EOH - full reach of backhoe
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP33

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Clay, red/brown and grey, heterogeneous, dry, stiff, low plasticity		No odours, staining or ACM observed
	0.5, 1.0	0.30		Fill	Fill - Gravelly Clay, dark brown/grey with red mottles, heterogeneous, dry to damp, with inclusions of trace tile, brick, conrete, plastic, fabric		
	1.5	1.30		Fill	Fill - Clayey Silt with trace sand, brown, heterogeneous, dry		
	2.0, 2.5	1.70		Fill	Fill - Sandy Silt, dark grey, heterogeneous, dry, fine, dusty, with inclusions of tiles, ply wood, roots, hay	STP33_2.0	
	3.0, 3.5	2.70		Fill	Fill - Gravelly Clay, brown, heterogeneous, moist, soft, low plasticity	STP33_3.0	Natural Silty Clay, grey with red mottles, stiff, medium plasticity - in south corner of test pit
	4.0, 4.5, 5.0, 5.5	3.80			Test Pit STP33 terminated at 3.8m		EOH - full reach of backhoe

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP34

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.4
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Silty Clay and rock, red brown, heterogeneous, dry, stiff, with iclusions of cuttlery, brick, concrete (trace)		No odours, staining or ACM observed
		0.30		Fill	Fill - Gravelly Silty Clay, orange brown, hetergeneous, dry to damp, medium plasticity, firm, with inclusions of tape (grey), gravels, trace concrete and PVC		
	0.5						
	1.0						
	1.5					STP34_1.5	
	2.0						
		2.10		CL-GS	Gravelly Sand Clay, yeloow orangey brown, heterogeneous, firm		
		2.20		CL-GS	Gravelly Sand Clay, yeloow orangey brown, heterogeneous, very hard		
	2.5	2.40			Test Pit STP34 terminated at 2.4m		
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP35

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.4
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Silty Clay, grey brown and red, heterogeneous, dry, stiff, low plasticity, with inlcusions of sandstone, shale, plastic		No odours, staining or ACM observed
	0.5, 1.0	0.30		Fill	Fill - Gravelly Sandy Clay, orange, heterogeneous, dry to damp, medium plasticty, including large concrte and sandstone rubble		
		1.20		Fill	Fill - Gravelly Clayey Silt, dark brown, heterogeneous, dry, with inclusions of trace tiles, concrete, roots, dead grass		
	1.5, 2.0	1.40		Fill	Fill - Clayey Sandy Silt, brown, dry, heterogeneous, with inclusions of brick, sandstone, concrete pipe, PVC, plastic, glass, gravels, tiles	STP35_1.7	
		2.10		CL-ML	Silty Clay, grey with orange mottles, stiff, low plasticity		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.40			Test Pit STP35 terminated at 2.4m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP36

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.9
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Clay, brown/grey, heterogeneous, dry, stiff, low plasticity		
		0.10		Fill	Fill - Sandy Clay, brown, heterogeneous, dry, with inclusions of brick, concrete, tile fragments, gravels, plastic, glass, steel hook, dead grass, clay chunks (red/cream brown), trace asphalt		No odours, staining or ACM observed
	0.5						
	1.0					STP36_1.0	
	1.5						
		1.60		CL	Clay, grey with red/orange mottles, stiff, medium plasticity		
		1.80		SHALE	Shale, grey with red/orange mottles, hard		
	2.0	1.90			Test Pit STP36 terminated at 1.9m		
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP37

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5, 2.0			Fill	Fill - Gravelly Silty Clay, red and grey, heterogeneous, dry to damp, low to medium plasticity, with inclusions of trace timber, plastic, sticks, gravels, concrte and rio, brick (all trace)	STP37_1.5	No odours, staining or ACM observed
		2.00		CL	Clay, red with orange and grey mottles, hard/stiff, low plasticity		
	2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	2.30			Test Pit STP37 terminated at 2.3m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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JBS&G

STP38

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 3.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Gravelly Sandy Clay, grey red and brown, heterogeneous, dry, with inclusions of rio, brick, rock, plastic		
	1.5, 2.0, 2.5	1.20		Fill	Fill - Sandy Silty Clay, black/dark grey/brown, heterogeneous, with inclusions of ACM, concrete, scrap metal, timber	STP38_1.5	Multiple ACM fragments (corrugated and flat fragments), no odours or staining.
	3.0, 3.5	2.50		Fill	Fill - Gravelly Sandy Clay, black/brown, heterogeneous, damp, with inclusions of bricks, timber/sticks, organic matter	STP38_3.0	Organic odour, no staining or ACM
	4.0, 4.5, 5.0, 5.5	3.70			Test Pit STP38 terminated at 3.7m		EOH - full reach of backhoe

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP39

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Mixed Silty Sand and Sandy Clay, orange brown and dark brown, heterogeneous, dry to damp, with inlcusions of plastic piece (black fragment)	STP39_0.2	No odours, staining or ACM observed
	0.5	0.35		CL	Clay, grey with red/orange mottles, stiff, homogeneous, low plasticity		
		0.70			Test Pit STP39 terminated at 0.7m		
	1.0						
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP40

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				SHALE	SHALE, grey with orange, dry, hard		No odours, staining or ACM observed
	0.5	0.30		SHALE	SHALE, red/orange with grey, dry, hard		
		0.70			Test Pit STP40 terminated at 0.7m		
	1.0						
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP41

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 0.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Mulch and bricks, dark brown, hetergeneous, damp		No odours, staining or ACM observed
		0.25		Fill	Fill - Silty Sand, light brown, heterogeneous, well sorted, damp	STP41_0.25	
	0.5	0.35		ML-CL	Clayey Silt, brown, homogeneous, damp, fine, low plasticity, soft to firm		
		0.50		CL-ML	Silty Clay, brown, homogeneous, damp, firm, medium plasticity		
		0.60		CL	Clay, red, homogeneous, damp, firm, low to medium plasticity		
		0.70		CL	Clay, grey, homogeneous, damp, firm, low to medium plasticity		
		0.80			Test Pit STP41 terminated at 0.8m		
	1.0						
	1.5						
	2.0						
	2.5						
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP42

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Clay, dry, heterogeneous, low plasticity, stiff, with inclusions of bricks		
		0.30		Fill	Fill - Gravelly Sandy Clay, brown, heterogeneous, dry, with inclusions of pots (steel), old CD drive, timber, bricks, shale, sticks, metal scrap, ACM		
	0.5						
	1.0						
	1.5						ACM fragments (2 x large pieces (15 x 7 cm and 7 x 4.5 cm) ay 1 - 2 m bgs, no odours or staining
						STP42_1.7	
	2.0						
	2.5						
		2.50		CL-ML	Silty Clay, grey with red/orange mottles, dry to damp, medium plasticity, firm		
		2.80			Test Pit STP42 terminated at 2.8m		
	3.0						
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP43

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5			Fill	Fill - Gravelly Silty Clay, brown/grey with red, hetergeneous, dry, stiff, low plasticity, with inclusions of brick, sandstone, ceramic material	STP43_0.5	No odours, staining or ACM observed
	1.0	0.70		SHALE	SHALE, red/grey with orange, hard, dry		
		1.00			Test Pit STP43 terminated at 1m		

1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

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STP44

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 2.9
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Fill - Gravelly Clay, grey/red, dry, heterogeneous, low plasticity, stiff		No odours, staining or ACM observed
		0.30		Fill	Fill - Silty Clay, brown, heterogeneous, damp, with inclusions of roots		
	0.5						
	1.0					STP44_1.0	
		1.20		Fill	Fill - Gravelly Clay, brown, soft, damp to moist, with inclusions of roots, gravels (angular), shale, sticks		
	1.5						
	2.0						
	2.5						
		2.60		SHALE	Shale, grey with red and orange, hard, dry		
	3.0	2.90			Test Pit STP44 terminated at 2.9m		
	3.5						
	4.0						
	4.5						
	5.0						
	5.5						

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP45

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0, 1.5			Fill	Fill - Crushed Sandstone and sandstone chunks, creamy orangey brown, fine to coarse, damp	STP45_0.2	No odours, staining or ACM observed
		1.50		Fill	Silty Clay, red brown, heterogeneous		
	2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	1.80			Test Pit STP45 terminated at 1.5m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

NSW ICAC EXHIBIT

JBS&G

STP46

Project Number: 50648
Client: Riverstone Parade Pty Ltd
Project Name: Riverstone Parade Additional Site Works
Site Address: Cnr Riverstone Parade and Bandon Ave, Riverstone

Date: 1/06/2016
Logged By: Ellen Howley
Contractor: Ken Coles
Total Hole Depth (mbgs): 1.4
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit	0.5, 1.0			Fill	Fill - Crushed Sandstone and sandstone chunks, creamy orangey brown, fine to coarse, damp	STP46_0.4	No odours, staining or ACM observed
	1.5	1.40		Fill	Silty Clay, red brown, heterogeneous		
	2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	1.70			Test Pit STP46 terminated at 1.4m		

TEST PIT JBSG TEST PIT.GPJ GINT STD AUSTRALIA.GDT 9/6/16

Appendix C QA/QC RPD Calculations

Table A: RPD Caluculations Analytical Data
Riverstone Parade Additional Works

Field Duplicates (SOIL)
Filter: ALL

			SDG	502876	502876		499963	499963		499963	499963		502310	502310		502310	502310		499963	ENVIROLAB 2016-05-10T00:00:00		499963	ENVIROLAB 2016-05-10T00:00:00	
			Field ID	STP35_1.7	QS03	RPD	JB-08_0-0.15	QS01	RPD	JB-11_0-0.2	QS02	RPD	STP06_1.0	QS01	RPD	STP19_1.0	QS02	RPD	JB-08_0-0.15	Q501A	RPD	JB-11_0-0.2	Q502A	RPD
			Sampled Date/Time	1/06/2016	1/06/2016		10/05/2016	10/05/2016		10/05/2016	10/05/2016		26/05/2016	26/05/2016		26/05/2016	26/05/2016		10/05/2016	10/05/2016		10/05/2016	10/05/2016	
Chem_Gr	ChemName	Units	EQL																					
OPP	EPN	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Demeton-S	mg/kg	0.2				<0.2	<0.2	0										<0.2					
Metals & M	Arsenic (Total)	mg/kg	2 (Primary): 4 (Interlab)	3.4	7.8	79	3.6	5.1	34				5.6	6.4	13	5.8	6.1	5	3.6	<4.0	57			
	Cadmium	mg/kg	0.4	0.5	<0.4	86	<0.4	<0.4	0				<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0			
	Chromium (To	mg/kg	5 (Primary): 1 (Interlab)	11.0	14.0	24	13.0	27.0	70				<5.0	8.6	53	8.1	12.0	39	13.0	13.0	0			
	Copper	mg/kg	5 (Primary): 1 (Interlab)	21.0	27.0	25	<5.0	<5.0	0				5.5	7.1	25	32.0	42.0	27	<5.0	3.0	18			
	Lead	mg/kg	5 (Primary): 1 (Interlab)	**140.0**	**190.0**	**30**	18.0	16.0	12				<5.0	6.4	25	**140.0**	**220.0**	**44**	18.0	17.0	6			
	Mercury (Inorg	mg/kg	0.1	0.1	0.2	67																		
	Mercury (Inorg	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	0.26	0.4	42	<0.05	<0.1	0			
	Nickel	mg/kg	5 (Primary): 1 (Interlab)	5.3	7.4	33	<5.0	<5.0	0				<5.0	<5.0	0	<5.0	6.1	84	<5.0	<1.0	0			
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	**160.0**	**230.0**	**36**	8.0	6.2	25				5.1	7.1	33	**130.0**	**320.0**	**84**	8.0	7.0	13			
etalloids																								
TPHs (NEI	C6-C9 Fractio	mg/kg	20 (Primary): 25 (Interlab)				<20.0	<20.0	0				<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<25.0	0			
	C10-C14 Frac	mg/kg	20 (Primary): 50 (Interlab)				<20.0	<20.0	0				<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<50.0	0			
	C15-C28 Frac	mg/kg	50 (Primary): 100 (Interlab)				<50.0	<50.0	0				<50.0	<50.0	0	130.0	67.0	64	<50.0	<100.0	0			
	C29-C36 Frac	mg/kg	50 (Primary): 100 (Interlab)				<50.0	<50.0	0				<50.0	<50.0	0	100.0	67.0	40	<50.0	<100.0	0			
	C10-C36 Frac	mg/kg	50				<50.0	<50.0	0				<50.0	<50.0	0	230.0	134.0	53	<50.0					
C 1999)																								
TRHs (NEI	>C10-C16 Fra	mg/kg	50				<50.0	<50.0	0				<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	>C16-C34 Fra	mg/kg	100				<100.0	<100.0	0				<100.0	<100.0	0	220.0	120.0	59	<100.0	<100.0	0			
	>C34-C40 Fra	mg/kg	100				<100.0	<100.0	0				<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0			
	C6-C10 Fractio	mg/kg	20 (Primary): 25 (Interlab)				<20.0	<20.0	0				<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<25.0	0			
	C6 - C10 less	mg/kg	20 (Primary): 25 (Interlab)				<20.0	<20.0	0				<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<25.0	0			
	>C10 - C16 les	mg/kg	50				<50.0	<50.0	0				<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
C 2013)																								
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)				<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.2	0			
	Ethylbenzene	mg/kg	0.1 (Primary): 1 (Interlab)				<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<1.0	0			
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)				<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.5	0			
	Xylene (m & p	mg/kg	0.2 (Primary): 2 (Interlab)				<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<2.0	0			
	Xylene (o)	mg/kg	0.1 (Primary): 1 (Interlab)				<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<1.0	0			
	Xylene (Total)	mg/kg	0.3				<0.3	<0.3	0				<0.3	<0.3	0	<0.3	<0.3	0	<0.3					
Polycyclic A	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Acenaphthyler	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	0.9	<0.5	113	<0.5	<0.1	0			
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	**1.4**	**<0.5**	139	<0.5	<0.1	0			
	Benz(a)anthra	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	2.9	1.5	64	<0.5	<0.1	0			
	Benzo(a)pyrer	mg/kg	0.5 (Primary): 0.05 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	2.6	1.6	48	<0.5	<0.05	0			
	Benzo(a)pyrer	mg/kg	0.5				<0.5	<0.5	0				<0.5	<0.5	0	3.4	2.1	47	<0.5	<0.5	0			
	Benzo(a)pyrer	mg/kg	0.5				0.6	0.6	0				0.6	0.6	0	3.7	2.4	43	0.6	<0.5	-			
	Benzo(a)pyrer	mg/kg	0.5				1.2	1.2	0				1.2	1.2	0	3.9	2.6	40	**1.2**	**<0.5**	**-**			
	Benzo(b,j)fluor	mg/kg	0.5				<0.5	<0.5	0				<0.5	<0.5	0	1.7	1.7	0	<0.5					
	Benzo(g,h,i)pe	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	1.3	0.9	36	<0.5	<0.1	0			
	Benzo(k)fluora	mg/kg	0.5				<0.5	<0.5	0				<0.5	<0.5	0	2.0	1.3	42	<0.5					
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	2.5	1.4	56	<0.5	<0.1	0			
	Dibenz(a,h)ant	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	**6.9**	**3.0**	**79**	<0.5	<0.1	0			
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	0.6	<0.5	82	<0.5	<0.1	0			
	Indeno(1,2,3-c	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	1.1	0.7	44	<0.5	<0.1	0			
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	**6.0**	**1.6**	**116**	<0.5	<0.1	0			
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	**6.0**	**3.0**	**67**	<0.5	<0.1	0			
	PAHs (Total)	mg/kg	0.5				<0.5	<0.5	0				<0.5	<0.5	0	**35.9**	**16.7**	**73**	<0.5					
Aromatic Hydrocarbons																								
Chlorinated	Hexachlorober	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
l Benzenes																								
Polychlorin	Aroclor 1016	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Aroclor 1221	mg/kg	0.1										<0.1	<0.1	0	<0.1	<0.1	0						
	Aroclor 1232	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Aroclor 1242	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Aroclor 1248	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Aroclor 1254	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	Aroclor 1260	mg/kg	0.5 (Primary): 0.1 (Interlab)				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0			
	PCBs (Total)	mg/kg	0.5				<0.5	<0.5	0				<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
ated Biphenyls																								
Organochlo	Aldrin	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	4,4-DDE	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Dieldrin	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	DDD	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	alpha-BHC	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	DDT	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	beta-BHC	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Chlordane	mg/kg	0.1				<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1					
	delta-BHC	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endosulfan alp	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endosulfan be	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endosulfan su	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endrin	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endrin aldehyd	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Endrin ketone	mg/kg	0.05				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05					
	Heptachlor	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Heptachlor Ep	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Lindane	mg/kg	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0			
	Methoxychlor	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0			
	Toxaphene	mg/kg	1				<1.0	<1.0	0				<1.0	<1.0	0	<1.0	<1.0	0	<1.0					
rine Pesticides																								

Filter: ALL

Table A: RPD Caluculations Analytical Data
Riverstone Parade Additional Works

Field Duplicates (SOIL)
Filter: ALL

			SDG	502876	502876		499963	499963		499963	499963		502310	502310		502310	502310		499963	ENVIROLAB 2016-05-10T00:00:00		499963	ENVIROLAB 2016-05-10T00:00:00	
			Field ID	STP35_1.7	QS03	**RPD**	JB-08_0-0.15	QS01	**RPD**	JB-11_0-0.2	QS02	**RPD**	STP06_1.0	QS01	**RPD**	STP19_1.0	QS02	**RPD**	JB-08_0-0.15	Q501A	**RPD**	JB-11_0-0.2	Q502A	**RPD**
			Sampled Date/Time	1/06/2016	1/06/2016		10/05/2016	10/05/2016		10/05/2016	10/05/2016		26/05/2016	26/05/2016		26/05/2016	26/05/2016		10/05/2016	10/05/2016		10/05/2016	10/05/2016	
Organoph	Azinphos meth	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Chlorfenvinph	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Chlorpyrifos-m	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Coumaphos	mg/kg	2				<2.0	<2.0	0										<2.0					
	Demeton-O	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Diazinon	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Dichlorvos	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Dimethoate	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Disulfoton	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Ethion	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Ethoprophos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Fenitrothion	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Fensulfothion	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Fenthion	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Malathion	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Merphos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Mevinphos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Monocrotopho	mg/kg	2				<2.0	<2.0	0										<2.0					
	Omethoate	mg/kg	2				<0.2	<0.2	0										<0.2					
	Parathion	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Parathion meth	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Phorate	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Pirimiphos me	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Pyrazophos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Ronnel	mg/kg	0.2 (Primary): 0.1 (Interlab)				<0.2	<0.2	0										<0.2	<0.1	0			
	Sulprofos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Terbufos	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Tetrachlorvinp	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Tokuthion	mg/kg	0.2				<0.2	<0.2	0										<0.2					
	Trichloronate	mg/kg	0.2				<0.2	<0.2	0										<0.2					
sphorus Pesticides																								
Other	% Moisture 10	%	1	11.0	11.0	0	6.5	7.9	19				19.0	16.0	17	11.0	11.0	0	6.5					

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table A: RPD Caluculations Analytical Data
Riverstone Parade Additional Works

Field Duplicates (SOIL)
Filter: ALL

			SDG	502310	ENVIROLAB 2016-05-27T00:00:00		502310	ENVIROLAB 2016-05-27T00:00:00		502876	ENVIROLAB 2016-06-02T00:00:00	
			Field ID	STP06_1.0	QS01A	RPD	STP19_1.0	QS02A	RPD	STP35_1.7	QS03A	RPD
			Sampled Date/Time	26/05/2016	26/05/2016		26/05/2016	26/05/2016		1/06/2016	1/06/2016	
Chem_Gro	ChemName	Units	EQL									
OPP	EPN	mg/kg	0.2									
	Demeton-S	mg/kg	0.2									
Metals & M	Arsenic (Total)	mg/kg	2 (Primary): 4 (Interlab)	5.6	8.0	35	5.8	5.0	15	**3.4**	**8.0**	**81**
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0	0.5	0.5	0
	Chromium (To	mg/kg	5 (Primary): 1 (Interlab)	**<5.0**	**15.0**	143	8.1	13.0	46	11.0	13.0	17
	Copper	mg/kg	5 (Primary): 1 (Interlab)	5.5	9.0	48	**32.0**	**46.0**	**36**	21.0	26.0	21
	Lead	mg/kg	5 (Primary): 1 (Interlab)	<5.0	10.0	120	140.0	130.0	7	**140.0**	**190.0**	**30**
	Mercury (Inorg	mg/kg	0.1							0.1	0.2	67
	Mercury (Inorg	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	0.26	0.2	26			
	Nickel	mg/kg	5 (Primary): 1 (Interlab)	<5.0	2.0	22	<5.0	6.0	82	5.3	6.0	12
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	5.1	8.0	44	130.0	110.0	17	160.0	170.0	6
etalloids												
TPHs (NEP	C6-C9 Fractio	mg/kg	20 (Primary): 25 (Interlab	<20.0	<25.0	0	<20.0	<25.0	0			
	C10-C14 Frac	mg/kg	20 (Primary): 50 (Interlab	<20.0	<50.0	0	<20.0	<50.0	0			
	C15-C28 Frac	mg/kg	50 (Primary): 100 (Interla	<50.0	<100.0	0	130.0	<100.0	26			
	C29-C36 Frac	mg/kg	50 (Primary): 100 (Interla	<50.0	<100.0	0	100.0	<100.0	0			
	C10-C36 Frac	mg/kg	50	<50.0			230.0					
C 1999)												
TRHs (NEP	>C10-C16 Fra	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0			
	>C16-C34 Fra	mg/kg	100	<100.0	<100.0	0	220.0	<100.0	75			
	>C34-C40 Fra	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0			
	C6-C10 Fractio	mg/kg	20 (Primary): 25 (Interlab	<20.0	<25.0	0	<20.0	<25.0	0			
	C6 - C10 less	mg/kg	20 (Primary): 25 (Interlab	<20.0	<25.0	0	<20.0	<25.0	0			
	>C10 - C16 les	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0			
C 2013)												
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interla	<0.1	<0.2	0	<0.1	<0.2	0			
	Ethylbenzene	mg/kg	0.1 (Primary): 1 (Interlab)	<0.1	<1.0	0	<0.1	<1.0	0			
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interla	<0.1	<0.5	0	<0.1	<0.5	0			
	Xylene (m & p)	mg/kg	0.2 (Primary): 2 (Interlab)	<0.2	<2.0	0	<0.2	<2.0	0			
	Xylene (o)	mg/kg	0.1 (Primary): 1 (Interlab)	<0.1	<1.0	0	<0.1	<1.0	0			
	Xylene (Total)	mg/kg	0.3	<0.3			<0.3					
Polycyclic A	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Acenaphthyler	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**0.9**	**0.2**	**127**			
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**1.4**	**0.5**	**95**			
	Benz(a)anthra	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	2.9	2.0	37			
	Benzo(a)pyrer	mg/kg	0.5 (Primary): 0.05 (Inter	<0.5	<0.05	0	**2.6**	**1.7**	**42**			
	Benzo(a)pyrer	mg/kg	0.5	<0.5	<0.5	0	3.4	2.3	39			
	Benzo(a)pyrer	mg/kg	0.5	0.6	<0.5	-	3.7	2.3	47			
	Benzo(a)pyrer	mg/kg	0.5	**1.2**	**<0.5**	-	3.9	2.4	48			
	Benzo(b,j)fluor	mg/kg	0.5	<0.5			1.7					
	Benzo(g,h,i)pe	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	1.3	0.7	60			
	Benzo(k)fluora	mg/kg	0.5	<0.5			2.0					
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	2.5	1.8	33			
	Dibenz(a,h)ant	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**6.9**	**4.3**	**46**			
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**0.6**	**<0.1**	169			
	Indeno(1,2,3-c	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	1.1	0.7	44			
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.1	0	<0.5	<0.1	0			
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.1	0	<0.5	<0.1	0			
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**6.0**	**2.3**	**89**			
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	**6.0**	**4.4**	**31**			
	PAHs (Total)	mg/kg	0.5	<0.5			35.9					
Aromatic Hydrocarbons												
Chlorinated	Hexachlorober	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
Benzenes												
Polychlorin	Aroclor 1016	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Aroclor 1221	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0			
	Aroclor 1232	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Aroclor 1242	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Aroclor 1248	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Aroclor 1254	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	Aroclor 1260	mg/kg	0.5 (Primary): 0.1 (Interla	<0.5	<0.1	0	<0.5	<0.1	0			
	PCBs (Total)	mg/kg	0.5	<0.5			<0.5					
ated Biphenyls												
Organochlo	Aldrin	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	4,4-DDE	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Dieldrin	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	DDD	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	alpha-BHC	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	DDT	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	beta-BHC	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Chlordane	mg/kg	0.1	<0.1			<0.1					
	delta-BHC	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endosulfan alp	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endosulfan be	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endosulfan su	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endrin	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endrin aldehyd	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Endrin ketone	mg/kg	0.05	<0.05			<0.05					
	Heptachlor	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Heptachlor Ep	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Lindane	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.1	0	<0.05	<0.1	0			
	Methoxychlor	mg/kg	0.2 (Primary): 0.1 (Interla	<0.2	<0.1	0	<0.2	<0.1	0			
	Toxaphene	mg/kg	1	<1.0			<1.0					
rine Pesticides												

Filter: ALL

Table A: RPD Caluculations Analytical Data
Riverstone Parade Additional Works

Field Duplicates (SOIL)
Filter: ALL

			SDG	502310	ENVIROLAB 2016-05-27T00:00:00		502310	ENVIROLAB 2016-05-27T00:00:00		502876	ENVIROLAB 2016-06-02T00:00:00	
			Field ID	STP06_1.0	QS01A	**RPD**	STP19_1.0	QS02A	**RPD**	STP35_1.7	QS03A	**RPD**
			Sampled Date/Time	26/05/2016	26/05/2016		26/05/2016	26/05/2016		1/06/2016	1/06/2016	
Organoph	Azinphos meth	mg/kg	0.2 (Primary): 0.1 (Interla									
	Chlorfenvinph	mg/kg	0.2									
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.1 (Interla									
	Chlorpyrifos-m	mg/kg	0.2 (Primary): 0.1 (Interla									
	Coumaphos	mg/kg	2									
	Demeton-O	mg/kg	0.2									
	Diazinon	mg/kg	0.2 (Primary): 0.1 (Interla									
	Dichlorvos	mg/kg	0.2 (Primary): 0.1 (Interla									
	Dimethoate	mg/kg	0.2 (Primary): 0.1 (Interla									
	Disulfoton	mg/kg	0.2									
	Ethion	mg/kg	0.2 (Primary): 0.1 (Interla									
	Ethoprophos	mg/kg	0.2									
	Fenitrothion	mg/kg	0.2 (Primary): 0.1 (Interla									
	Fensulfothion	mg/kg	0.2									
	Fenthion	mg/kg	0.2									
	Malathion	mg/kg	0.2 (Primary): 0.1 (Interla									
	Merphos	mg/kg	0.2									
	Mevinphos	mg/kg	0.2									
	Monocrotopho	mg/kg	2									
	Omethoate	mg/kg	2									
	Parathion	mg/kg	0.2 (Primary): 0.1 (Interla									
	Parathion meth	mg/kg	0.2									
	Phorate	mg/kg	0.2									
	Pirimiphos me	mg/kg	0.2									
	Pyrazophos	mg/kg	0.2									
	Ronnel	mg/kg	0.2 (Primary): 0.1 (Interla									
	Sulprofos	mg/kg	0.2									
	Terbufos	mg/kg	0.2									
	Tetrachlorvinp	mg/kg	0.2									
	Tokuthion	mg/kg	0.2									
	Trichloronate	mg/kg	0.2									
sphorus Pesticides												
Other	% Moisture 10	%	1	19.0			11.0			11.0		

*RPDs have only been considered where a concentration is gre
**High RPDs are in bold (Acceptable RPDs for each EQL multip
***Interlab Duplicates are matched on a per compound basis as

Filter: ALL

NSW ICAC EXHIBIT

Table 3: Duplicate and Triplicate ACM Comparison Table
Job #: 50648
Client: Riverstone Parade Pty Ltd
Name: Riverstone Parade

Primary Sample ID	ACM Detected	Duplicate ID	ACM Detected	Detections in Agreement	Triplicate ID	ACM Detected	Detections in Agreement
STP06_1.0	No	QS01	No	Yes	QS01A	No	Yes
STP19_1.0	No	QS02 (26/05/16)	No	Yes	QS02A (26/05/2016)	No	Yes
STP35_1.7	No	QS03	Yes	**No**	QS03A	No	Yes
JB-11_0.0-0.2	No	QS02 (10/05/16)	No	Yes	QS02A (10/05/2016)	No	Yes

Appendix D Laboratory Reports and Chain of Custody Documentation

CHAIN OF CUSTODY

Pg 1/6

JBS&G

PROJECT NO.: 50648	LABORATORY BATCH NO.:
PROJECT NAME: Riverstone Parade Meatworks	SAMPLERS: JN
DATE NEEDED BY: Standard	QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....CBielby.....@jbsg.com.au; (3) .....JNichelson.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBZ	OPPs	Asbestos	Heavy metals	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
JB-01_0-0.15	soil	10/5/16		Jar		X	X					* NEPM
_0-0.2				bag				X				500mL sample
_0.5-0.6				Jar								
JB-02_0-0.15				Jar		X	X					
_0-0.3				Bag				X				
_0.5-0.6				Jar								
_0.3-0.9				bag								
_1.0-1.1				Jar								
_0.9-1.5				bag								
_1.5-1.6				Jar								
_1.5-2.0				Bag								
_2.0-2.1				Jar								
JB-03_0-0.15				Jar					X			
_0-0.2				Bag								
_0.5-0.6				Jar								
JB-04_0-0.15				Jar								
_0-0.15				bag								
_0.15-0.25				Jar								
JB-05_0-0.15				Jar								

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: J. Nichelson DATE: 10/5/16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: Siomak 17:15 DATE: 10/05 OF: EGLAB	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO Forms013 – Chain of Custody - Generic

499963

CHAIN OF CUSTODY

Pg 2/6

JBS&G

PROJECT NO.: 50648

PROJECT NAME: Riverstone Parade Meatworks

DATE NEEDED BY: standard

LABORATORY BATCH NO.:

SAMPLERS: JN

QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) C.Bielby@jbsg.com.au; (3) JNicholson@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy metals	PAHs	TRH	OCPs/OPPs/PCBs	Asbestos	JB2	OPPs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
JB-05_0-0.6	soil	10/5/16		bag											
_0.6-0.7				Jar											
JB-06_0-0.15				Jar		X									
_0-0.5				bag											
_0.5-0.6				Jar											
JB-07_0-0.15				Jar			X								
_0-0.6				bag											
_0.5-0.6				Jar											
JB-08_0-0.15				Jar							X	X			
_0-0.3				bag						X					
_0.5-0.6				Jar											
_0.3-0.9				bag											
_0.9-1.0				Jar		X									
JB-09_0-0.15				Jar		X									
_0-0.4				bag											
_0.5-0.6				Jar											
JB-10_0-0.15				Jar				X	X						
_0-0.6				bag											
_0.6-0.7				Jar											

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: JS 17:25	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: 10/05 OF:	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 FormsO13 – Chain of Custody - Generic

05448

CHAIN OF CUSTODY

3/6

JBS&G

PROJECT NO.: 50648	LABORATORY BATCH NO.:
PROJECT NAME: Riverstone Parade Meatworks	SAMPLERS: JN
DATE NEEDED BY: Standard	QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....CBielby.....@jbsg.com.au; (3) .....JNichelsen.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy metals	CEC	pH	Asbestos	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
JB-10_0.6-1.1	Soil	10/5/16		bag								
_1.1-1.2				Jar								
_1.1-1.9				bag								
_1.9-2.0				Jar								
JB-11_0-0.15				Jar		X						
_0-0.2				bag					X			
_0.2-0.7				bag								
_0.5-0.6				Jar								
JB-12_0-0.15				Jar								
_0-0.3				bag								
_0.5-0.6				Jar								
JB-13_0-0.15				Jar		X	X	X				
_0-0.8				bag								
_0.8-0.9				Jar								
JB-14_0-0.15				Jar								
_0-0.4				bag								
_0.5-0.6				Jar								
_0.8-0.9				Jar								
JB-15_0-0.15				Jar								

RELINQUISHED BY	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: SS DATE: 10/05 17:15	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF:	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 Forms013 – Chain of Custody - Generic

CHAIN OF CUSTODY

4/6

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone Parade Meatworks
DATE NEEDED BY: Standard

LABORATORY BATCH NO.:
SAMPLERS:
QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....CBielby.....@jbsg.com.au; (3) .....JNicholson.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy metals	PAHs	TRH	OCPs/OPPs/PCBs	Asbestos	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
JB-15_0-0.2	soil	10/5/16		bag									
_0.5-0.6				Jar									
_0.2-0.7				bag									
JB-16_0-0.15				Jar		X				X			
_0-0.5				bag									
_0.5-0.6				Jar									
JB-17_0-0.15				Jar			X						
_0-0.3				bag									
_0.5-0.6				Jar									
JB-18_0-0.15				Jar				X					
_0-0.6				bag									
_0.6-0.7				Jar									
JB-19_0-0.15				Jar		X							
_0-0.6				Bag									
_0.6-0.7				Jar									
JB-20_0-0.15				Jar					X				
_0-0.4				Bag									
_0.5-0.6				Jar									
JB-21_0-0.15				Jar									

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: SS DATE: 10/05 17:15	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF:	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 Forms013 – Chain of Custody - Generic

05450

CHAIN OF CUSTODY

5/6

JBS&G

PROJECT NO.: 50648	LABORATORY BATCH NO.:
PROJECT NAME:	SAMPLERS:
DATE NEEDED BY: Standard	QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....@jbsg.com.au; (3) .....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBZ	OPPs	Asbestos	Heavy metals	CEC	pH	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
JB-21_0-0.5	Soil	10/5/16		bag										
_0.5-0.6				Jar										
_1.5-1.6				Jar										
JB-22_0-0.15				Jar										
_0-0.5				Bag										
_0.5-0.6				Jar										
JB-23_0-0.15				Jar				X	X	X				
_0-0.5				bag										
_0.5-0.6				Jar										
JB-24_0-0.15				Jar										
_0-0.3				Bag										
_0.5-0.6				Jar										
JB-26_0-0.15				Jar		X	X							
_0-0.6				Bag				X						
_0.5-0.6				Jar										
JB-26_0-0.15				Jar										
_0-0.9				bag										
_0.5-0.6				Jar										
_0.9-1.0				Jar										

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE: 17:15	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF:	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 FormsO13 – Chain of Custody - Generic

05451

CHAIN OF CUSTODY

6/6

JBS&G

PROJECT NO.: 50648	LABORATORY BATCH NO.:
PROJECT NAME:	SAMPLERS:
DATE NEEDED BY: Standard	QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....@jbsg.com.au; (3) .....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL.

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	VBZ	OPPs	Asbestos	Hold	BTEX	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
QS01	soil	10/5/16		Jar		X	X						
QS02	↓	↓		bag				X					
QS03	↓	↓		Jar					X				
TS	water	↓		2x vials						X			
TB	↓	↓		↓						X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: SS 17:15	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: 10/05 OF:	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 FormsO13 Chain of Custody - Generic

eurofins | mgt

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NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**JBS & G Australia (NSW & WA) P/L**
Contact name:	Chris Bielby
Project name:	RIVERSTONE PARADE MEATWORKS
Project ID:	50648
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	May 10, 2016 5:15 PM
Eurofins | mgt reference:	**499963**

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 : 1 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Extra sample JB-12_1.0-1.1 received, logged on HOLD.

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Chris Bielby - cbielby@jbsg.com.au.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Chris Bielby
Report	499963-AID
Project Name	RIVERSTONE PARADE MEATWORKS
Project ID	50648
Received Date	May 10, 2016
Date Reported	May 17, 2016

Methodology:

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

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.

Project Name RIVERSTONE PARADE MEATWORKS
Project ID 50648
Date Sampled May 10, 2016
Report 499963-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
JB-01_0-0.2	16-My10319	May 10, 2016	Approximate Sample 495g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
JB-02_0-0.3	16-My10320	May 10, 2016	Approximate Sample 716g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
JB-08_0-0.3	16-My10321	May 10, 2016	Approximate Sample 811g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
JB-11_0-0.2	16-My10322	May 10, 2016	Approximate Sample 691g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
JB-16_0-0.5	16-My10323	May 10, 2016	Approximate Sample 733g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
JB-25_0-0.6	16-My10324	May 10, 2016	Approximate Sample 639g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
QS02	16-My10325	May 10, 2016	Approximate Sample 626g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	May 10, 2016	Indefinite

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NATA # 1261 Site # 18217

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Order No.:
Report #: 499963
Phone: 02 8245 0300
Fax:

Received: May 10, 2016 5:15 PM
Due: May 17, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	JB-01_0-0.15	May 10, 2016		Soil	S16-My10298						X				X			X
2	JB-02_0-0.15	May 10, 2016		Soil	S16-My10299						X				X			X
3	JB-03_0-0.15	May 10, 2016		Soil	S16-My10300								X		X			
4	JB-06_0-0.15	May 10, 2016		Soil	S16-My10301								X		X			
5	JB-07_0-0.15	May 10, 2016		Soil	S16-My10302				X						X			
6	JB-08_0-0.15	May 10, 2016		Soil	S16-My10303						X				X			X
7	JB-08_0.9-1.0	May 10, 2016		Soil	S16-My10304								X		X			
8	JB-09_0-0.15	May 10, 2016		Soil	S16-My10305								X		X			
9	JB-10_0-0.15	May 10, 2016		Soil	S16-My10306					X	X	X			X		X	
10	JB-11_0-0.15	May 10, 2016		Soil	S16-My10307								X		X			

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Received: May 10, 2016 5:15 PM
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Priority: 5 Day
Contact Name: Chris Bielby

Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
11	JB-13_0-0.15	May 10, 2016		Soil	S16-My10308			X					X		X	X		
12	JB-16_0-0.15	May 10, 2016		Soil	S16-My10309								X		X			
13	JB-17_0-0.15	May 10, 2016		Soil	S16-My10310				X						X			
14	JB-18_0-0.15	May 10, 2016		Soil	S16-My10311										X		X	
15	JB-19_0-0.15	May 10, 2016		Soil	S16-My10312								X		X			
16	JB-20_0-0.15	May 10, 2016		Soil	S16-My10313					X	X	X			X			
17	JB-23_0-0.15	May 10, 2016		Soil	S16-My10314			X					X		X	X		
18	JB-25_0-0.15	May 10, 2016		Soil	S16-My10315						X				X			X
19	QS01	May 10, 2016		Soil	S16-My10316						X				X			X
20	TS	May 10, 2016		Water	S16-My10317									X				
21	TB	May 10, 2016		Water	S16-My10318									X				

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Project Name: RIVERSTONE PARADE MEATWORKS
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Received: May 10, 2016 5:15 PM
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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
22	JB-01_0-0.2	May 10, 2016		Soil	S16-My10319	X												
23	JB-02_0-0.3	May 10, 2016		Soil	S16-My10320	X												
24	JB-08_0-0.3	May 10, 2016		Soil	S16-My10321	X												
25	JB-11_0-0.2	May 10, 2016		Soil	S16-My10322	X												
26	JB-16_0-0.5	May 10, 2016		Soil	S16-My10323	X												
27	JB-25_0-0.6	May 10, 2016		Soil	S16-My10324	X												
28	QS02	May 10, 2016		Soil	S16-My10325	X												
29	JB-01_0.5-0.6	May 10, 2016		Soil	S16-My10326		X											
30	JB-02_0.5-0.6	May 10, 2016		Soil	S16-My10327		X											
31	JB-02_0.3-0.9	May 10, 2016		Soil	S16-My10328		X											
32	JB-02_1.0-1.1	May 10, 2016		Soil	S16-My10329		X											

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Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
33	JB-02_0.9-1.5	May 10, 2016		Soil	S16-My10330		X											
34	JB-02_1.5-1.6	May 10, 2016		Soil	S16-My10331		X											
35	JB-02_1.5-2.0	May 10, 2016		Soil	S16-My10332		X											
36	JB-02_2.0-2.1	May 10, 2016		Soil	S16-My10333		X											
37	JB-03_0-0.2	May 10, 2016		Soil	S16-My10334		X											
38	JB-03_0.5-0.6	May 10, 2016		Soil	S16-My10335		X											
39	JB-04_0-0.15	May 10, 2016		Soil	S16-My10336		X											
40	JB-04_0-0.15	May 10, 2016		Soil	S16-My10337		X											
41	JB-04_0.15-0.25	May 10, 2016		Soil	S16-My10338		X											
42	JB-05_0-0.15	May 10, 2016		Soil	S16-My10339		X											
43	JB-05_0-0.6	May 10, 2016		Soil	S16-My10340		X											

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Address: Level 1, 50 Margaret St
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Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

Order No.:
Report #: 499963
Phone: 02 8245 0300
Fax:

Received: May 10, 2016 5:15 PM
Due: May 17, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
44	JB-05_0.6-0.7	May 10, 2016		Soil	S16-My10341		X											
45	JB-06_0-0.5	May 10, 2016		Soil	S16-My10342		X											
46	JB-06_0.5-0.6	May 10, 2016		Soil	S16-My10343		X											
47	JB-07_0-0.6	May 10, 2016		Soil	S16-My10344		X											
48	JB-07_0.5-0.6	May 10, 2016		Soil	S16-My10345		X											
49	JB-08_0.5-0.6	May 10, 2016		Soil	S16-My10346		X											
50	JB-08_0.3-0.9	May 10, 2016		Soil	S16-My10347		X											
51	JB-09_0-0.4	May 10, 2016		Soil	S16-My10348		X											
52	JB-09_0.5-0.6	May 10, 2016		Soil	S16-My10349		X											
53	JB-10_0-0.6	May 10, 2016		Soil	S16-My10350		X											
54	JB-10_0.6-0.7	May 10, 2016		Soil	S16-My10351		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
55	JB-10_0.6-1.1	May 10, 2016		Soil	S16-My10352		X											
56	JB-10_1.1-1.2	May 10, 2016		Soil	S16-My10353		X											
57	JB-10_1.1-1.9	May 10, 2016		Soil	S16-My10354		X											
58	JB-10_1.9-2.0	May 10, 2016		Soil	S16-My10355		X											
59	JB-11_0.2-0.7	May 10, 2016		Soil	S16-My10356		X											
60	JB-11_0.5-0.6	May 10, 2016		Soil	S16-My10357		X											
61	JB-12_0-0.15	May 10, 2016		Soil	S16-My10358		X											
62	JB-12_0-0.3	May 10, 2016		Soil	S16-My10359		X											
63	JB-12_0.5-0.6	May 10, 2016		Soil	S16-My10360		X											
64	JB-13_0-0.8	May 10, 2016		Soil	S16-My10361		X											
65	JB-13_0.8-0.9	May 10, 2016		Soil	S16-My10362		X											

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Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
66	JB-14_0-0.15	May 10, 2016		Soil	S16-My10363		X											
67	JB-14_0-0.4	May 10, 2016		Soil	S16-My10364		X											
68	JB-14_0.5-0.6	May 10, 2016		Soil	S16-My10365		X											
69	JB-14_0.8-0.9	May 10, 2016		Soil	S16-My10366		X											
70	JB-15_0-0.15	May 10, 2016		Soil	S16-My10367		X											
71	JB-15_0-0.2	May 10, 2016		Soil	S16-My10368		X											
72	JB-15_0.5-0.6	May 10, 2016		Soil	S16-My10369		X											
73	JB-15_0.2-0.7	May 10, 2016		Soil	S16-My10370		X											
74	JB-16_0.5-0.6	May 10, 2016		Soil	S16-My10371		X											
75	JB-17_0-0.3	May 10, 2016		Soil	S16-My10372		X											
76	JB-17_0.5-0.6	May 10, 2016		Soil	S16-My10373		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
77	JB-18_0-0.6	May 10, 2016		Soil	S16-My10374		X											
78	JB-18_0.6-0.7	May 10, 2016		Soil	S16-My10375		X											
79	JB-19_0-0.6	May 10, 2016		Soil	S16-My10376		X											
80	JB-19_0.6-0.7	May 10, 2016		Soil	S16-My10377		X											
81	JB-20_0-0.4	May 10, 2016		Soil	S16-My10378		X											
82	JB-20_0.5-0.6	May 10, 2016		Soil	S16-My10379		X											
83	JB-21_0-0.15	May 10, 2016		Soil	S16-My10380		X											
84	JB-21_0-0.5	May 10, 2016		Soil	S16-My10381		X											
85	JB-21_0.5-0.6	May 10, 2016		Soil	S16-My10382		X											
86	JB-21_1.5-1.6	May 10, 2016		Soil	S16-My10383		X											
87	JB-22_0-0.15	May 10, 2016		Soil	S16-My10384		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
88	JB-22_0-0.5	May 10, 2016		Soil	S16-My10385		X											
89	JB-22_0.5-0.6	May 10, 2016		Soil	S16-My10386		X											
90	JB-23_0-0.5	May 10, 2016		Soil	S16-My10387		X											
91	JB-23_0.5-0.6	May 10, 2016		Soil	S16-My10388		X											
92	JB-24_0-0.15	May 10, 2016		Soil	S16-My10389		X											
93	JB-24_0-0.3	May 10, 2016		Soil	S16-My10390		X											
94	JB-24_0.5-0.6	May 10, 2016		Soil	S16-My10391		X											
95	JB-25_0.5-0.6	May 10, 2016		Soil	S16-My10392		X											
96	JB-26_0-0.15	May 10, 2016		Soil	S16-My10393		X											
97	JB-26_0-0.9	May 10, 2016		Soil	S16-My10394		X											
98	JB-26_0.5-0.6	May 10, 2016		Soil	S16-My10395		X											

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Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
99	JB-26_0.9-1.0	May 10, 2016		Soil	S16-My10396		X											
100	QS03	May 10, 2016		Soil	S16-My10397		X											
101	JB-12_1.0-1.1	May 10, 2016		Soil	S16-My10399		X											
Test Counts						7	73	2	2	2	7	2	9	2	19	2	2	5

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

Units

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

Terms

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

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable
M11	NATA accreditation does not cover the performance of this service.

Authorised by:

Rhys Thomas Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service
Uncertainty data is available on request

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
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Sydney
NSW 2000

Attention: **Chris Bielby**

Report **499963-S**
Project name RIVERSTONE PARADE MEATWORKS
Project ID 50648
Received Date May 10, 2016

Client Sample ID			**JB-01_0-0.15**	**JB-02_0-0.15**	**JB-03_0-0.15**	**JB-06_0-0.15**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10298**	**S16-My10299**	**S16-My10300**	**S16-My10301**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
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	%	91	75	-	-
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
Polycyclic Aromatic Hydrocarbons						
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	-	-
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	-	-

Client Sample ID			JB-01_0-0.15	JB-02_0-0.15	JB-03_0-0.15	JB-06_0-0.15
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10298	S16-My10299	S16-My10300	S16-My10301
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	-	-
2-Fluorobiphenyl (surr.)	1	%	95	95	-	-
p-Terphenyl-d14 (surr.)	1	%	98	100	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Dibutylchlorendate (surr.)	1	%	84	96	-	-
Tetrachloro-m-xylene (surr.)	1	%	93	118	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Coumaphos	2	mg/kg	< 2	< 2	-	-
Demeton-S	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	-	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	-	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	-	-
EPN	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	-	-
Ethyl parathion	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	-	-

Client Sample ID			JB-01_0-0.15	JB-02_0-0.15	JB-03_0-0.15	JB-06_0-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10298**	**S16-My10299**	**S16-My10300**	**S16-My10301**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Fenthion	0.2	mg/kg	< 0.2	< 0.2	-	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Merphos	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	-	-
Monocrotophos	2	mg/kg	< 2	< 2	-	-
Omethoate	2	mg/kg	< 0.2	< 0.2	-	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	-	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	-	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	-	-
Tetrachlorvinphos	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	%	96	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	-	-
Dibutylchlorendate (surr.)	1	%	84	96	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
% Moisture	1	%	12	12	14	9.7
Heavy Metals						
Arsenic	2	mg/kg	4.6	9.3	7.7	12
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	16	17	19
Copper	5	mg/kg	< 5	5.9	< 5	6.6
Lead	5	mg/kg	7.2	11	7.8	13
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	< 5	7.9	< 5	< 5

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	JB-07_0-0.15 Soil S16-My10302 May 10, 2016	JB-08_0-0.15 Soil S16-My10303 May 10, 2016	JB-08_0.9-1.0 Soil S16-My10304 May 10, 2016	JB-09_0-0.15 Soil S16-My10305 May 10, 2016
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	-	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	-
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	%	-	87	-	-
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	-
Polycyclic Aromatic Hydrocarbons						
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	-	-
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	-	-
2-Fluorobiphenyl (surr.)	1	%	101	97	-	-
p-Terphenyl-d14 (surr.)	1	%	101	100	-	-
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	-	-

Client Sample ID			JB-07_0-0.15	JB-08_0-0.15	JB-08_0.9-1.0	JB-09_0-0.15
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10302	S16-My10303	S16-My10304	S16-My10305
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Dibutylchlorendate (surr.)	1	%	-	93	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	109	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Bolstar	0.2	mg/kg	-	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	-
Coumaphos	2	mg/kg	-	< 2	-	-
Demeton-S	0.2	mg/kg	-	< 0.2	-	-
Demeton-O	0.2	mg/kg	-	< 0.2	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-	-
Dimethoate	0.2	mg/kg	-	< 0.2	-	-
Disulfoton	0.2	mg/kg	-	< 0.2	-	-
EPN	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.2	mg/kg	-	< 0.2	-	-
Ethoprop	0.2	mg/kg	-	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-	-
Fenthion	0.2	mg/kg	-	< 0.2	-	-
Malathion	0.2	mg/kg	-	< 0.2	-	-
Merphos	0.2	mg/kg	-	< 0.2	-	-
Methyl parathion	0.2	mg/kg	-	< 0.2	-	-
Mevinphos	0.2	mg/kg	-	< 0.2	-	-
Monocrotophos	2	mg/kg	-	< 2	-	-
Omethoate	2	mg/kg	-	< 0.2	-	-
Phorate	0.2	mg/kg	-	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-	-
Ronnel	0.2	mg/kg	-	< 0.2	-	-
Terbufos	0.2	mg/kg	-	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	-
Tokuthion	0.2	mg/kg	-	< 0.2	-	-

Client Sample ID			JB-07_0-0.15	JB-08_0-0.15	JB-08_0.9-1.0	JB-09_0-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10302**	**S16-My10303**	**S16-My10304**	**S16-My10305**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Trichloronate	0.2	mg/kg	-	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	-	97	-	-
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	-	-
Dibutylchlorendate (surr.)	1	%	-	93	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
% Moisture	1	%	16	6.5	6.5	9.6
Heavy Metals						
Arsenic	2	mg/kg	-	3.6	3.3	6.1
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	13	13	16
Copper	5	mg/kg	-	< 5	< 5	< 5
Lead	5	mg/kg	-	18	< 5	8.6
Mercury	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	-	< 5	< 5	< 5
Zinc	5	mg/kg	-	8.0	< 5	< 5

Client Sample ID			JB-10_0-0.15	JB-11_0-0.15	JB-13_0-0.15	JB-16_0-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10306**	**S16-My10307**	**S16-My10308**	**S16-My10309**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
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	< 50	-	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	-
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-

Client Sample ID			JB-10_0-0.15	JB-11_0-0.15	JB-13_0-0.15	JB-16_0-0.15
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10306	S16-My10307	S16-My10308	S16-My10309
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Dibutylchlorendate (surr.)	1	%	93	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Omethoate	2	mg/kg	< 0.2	-	-	-

Client Sample ID			JB-10_0-0.15	JB-11_0-0.15	JB-13_0-0.15	JB-16_0-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10306**	**S16-My10307**	**S16-My10308**	**S16-My10309**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	103	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
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	-	-	-
Dibutylchlorendate (surr.)	1	%	93	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
Conductivity (1:5 aqueous extract at 25°C)	5	uS/cm	-	-	46	-
pH (1:5 Aqueous extract)	0.1	pH Units	-	-	5.4	-
% Moisture	1	%	5.1	15	11	6.8
Ion Exchange Properties						
Cation Exchange Capacity	0.05	meq/100g	-	-	7.5	-
Heavy Metals						
Arsenic	2	mg/kg	-	6.6	6.0	11
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	18	14	20
Copper	5	mg/kg	-	7.9	< 5	10
Lead	5	mg/kg	-	9.4	9.1	13
Mercury	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	-	< 5	< 5	< 5
Zinc	5	mg/kg	-	6.3	< 5	14

Client Sample ID			JB-17_0-0.15	JB-18_0-0.15	JB-19_0-0.15	JB-20_0-0.15
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10310	S16-My10311	S16-My10312	S16-My10313
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016	May 10, 2016
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	-	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	-
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
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	< 0.5	-	-	-
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	< 0.5	-	-	-
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	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	97	-	-	-
p-Terphenyl-d14 (surr.)	1	%	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

Client Sample ID			JB-17_0-0.15	JB-18_0-0.15	JB-19_0-0.15	JB-20_0-0.15
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10310	S16-My10311	S16-My10312	S16-My10313
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	96
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	126
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	-	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	-	-	-	< 0.2
Fenthion	0.2	mg/kg	-	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	-	-	-	< 0.2
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	-	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Omethoate	2	mg/kg	-	-	-	< 0.2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	94
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID			JB-17_0-0.15	JB-18_0-0.15	JB-19_0-0.15	JB-20_0-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10310**	**S16-My10311**	**S16-My10312**	**S16-My10313**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB*	0.5	mg/kg	-	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	-	96
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	126
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
% Moisture	1	%	8.3	11	18	8.5
Heavy Metals						
Arsenic	2	mg/kg	-	-	12	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	25	-
Copper	5	mg/kg	-	-	5.2	-
Lead	5	mg/kg	-	-	14	-
Mercury	0.05	mg/kg	-	-	< 0.05	-
Nickel	5	mg/kg	-	-	< 5	-
Zinc	5	mg/kg	-	-	6.1	-

Client Sample ID			JB-23_0-0.15	JB-25_0-0.15	QS01
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My10314**	**S16-My10315**	**S16-My10316**
Date Sampled			**May 10, 2016**	**May 10, 2016**	**May 10, 2016**
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	%	-	74	75
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50

Client Sample ID			JB-23_0-0.15	JB-25_0-0.15	QS01
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10314	S16-My10315	S16-My10316
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
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
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
2-Fluorobiphenyl (surr.)	1	%	-	95	96
p-Terphenyl-d14 (surr.)	1	%	-	99	102
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	< 0.2
Toxaphene	1	mg/kg	-	< 1	< 1
Dibutylchlorendate (surr.)	1	%	-	92	98
Tetrachloro-m-xylene (surr.)	1	%	-	114	114

Client Sample ID			JB-23_0-0.15	JB-25_0-0.15	QS01
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10314	S16-My10315	S16-My10316
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	< 0.2
Coumaphos	2	mg/kg	-	< 2	< 2
Demeton-S	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
Dimethoate	0.2	mg/kg	-	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	< 0.2
EPN	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
Ethyl parathion	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
Malathion	0.2	mg/kg	-	< 0.2	< 0.2
Merphos	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
Monocrotophos	2	mg/kg	-	< 2	< 2
Omethoate	2	mg/kg	-	< 0.2	< 0.2
Phorate	0.2	mg/kg	-	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2	< 0.2
Tetrachlorvinphos	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	%	-	92	93
Polychlorinated Biphenyls (PCB)					
Aroclor-1016	0.5	mg/kg	-	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	-	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	-	92	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100

Client Sample ID			JB-23_0-0.15	JB-25_0-0.15	QS01
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My10314	S16-My10315	S16-My10316
Date Sampled			May 10, 2016	May 10, 2016	May 10, 2016
Test/Reference	LOR	Unit			
Conductivity (1:5 aqueous extract at 25°C)	5	uS/cm	330	-	-
pH (1:5 Aqueous extract)	0.1	pH Units	4.7	-	-
% Moisture	1	%	8.7	9.6	7.9
Ion Exchange Properties					
Cation Exchange Capacity	0.05	meq/100g	8.8	-	-
Heavy Metals					
Arsenic	2	mg/kg	13	12	5.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	23	14	27
Copper	5	mg/kg	7.6	13	< 5
Lead	5	mg/kg	13	13	16
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	< 5	< 5
Zinc	5	mg/kg	14	25	6.2

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
JBS&G Suite 2			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 11, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 11, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 11, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 11, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	May 11, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	May 11, 2016	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 11, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	May 11, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Organophosphorus Pesticides	Sydney	May 11, 2016	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 11, 2016	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
pH (1:5 Aqueous extract)	Sydney	May 13, 2016	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Conductivity (1:5 aqueous extract at 25°C)	Sydney	May 11, 2016	7 Day
- Method: LTM-INO-4030			
Ion Exchange Properties	Melbourne	May 12, 2016	
% Moisture	Sydney	May 10, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

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Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

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Fax:

Received: May 10, 2016 5:15 PM
Due: May 17, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	JB-01_0-0.15	May 10, 2016		Soil	S16-My10298						X				X			X
2	JB-02_0-0.15	May 10, 2016		Soil	S16-My10299						X				X			X
3	JB-03_0-0.15	May 10, 2016		Soil	S16-My10300								X		X			
4	JB-06_0-0.15	May 10, 2016		Soil	S16-My10301								X		X			
5	JB-07_0-0.15	May 10, 2016		Soil	S16-My10302				X						X			
6	JB-08_0-0.15	May 10, 2016		Soil	S16-My10303						X				X			X
7	JB-08_0.9-1.0	May 10, 2016		Soil	S16-My10304								X		X			
8	JB-09_0-0.15	May 10, 2016		Soil	S16-My10305								X		X			
9	JB-10_0-0.15	May 10, 2016		Soil	S16-My10306					X	X	X			X		X	
10	JB-11_0-0.15	May 10, 2016		Soil	S16-My10307								X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
11	JB-13_0-0.15	May 10, 2016		Soil	S16-My10308			X					X		X	X		
12	JB-16_0-0.15	May 10, 2016		Soil	S16-My10309								X		X			
13	JB-17_0-0.15	May 10, 2016		Soil	S16-My10310				X						X			
14	JB-18_0-0.15	May 10, 2016		Soil	S16-My10311										X		X	
15	JB-19_0-0.15	May 10, 2016		Soil	S16-My10312								X		X			
16	JB-20_0-0.15	May 10, 2016		Soil	S16-My10313					X	X	X			X			
17	JB-23_0-0.15	May 10, 2016		Soil	S16-My10314			X					X		X	X		
18	JB-25_0-0.15	May 10, 2016		Soil	S16-My10315						X				X			X
19	QS01	May 10, 2016		Soil	S16-My10316						X				X			X
20	TS	May 10, 2016		Water	S16-My10317									X				
21	TB	May 10, 2016		Water	S16-My10318									X				

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
22	JB-01_0-0.2	May 10, 2016		Soil	S16-My10319	X												
23	JB-02_0-0.3	May 10, 2016		Soil	S16-My10320	X												
24	JB-08_0-0.3	May 10, 2016		Soil	S16-My10321	X												
25	JB-11_0-0.2	May 10, 2016		Soil	S16-My10322	X												
26	JB-16_0-0.5	May 10, 2016		Soil	S16-My10323	X												
27	JB-25_0-0.6	May 10, 2016		Soil	S16-My10324	X												
28	QS02	May 10, 2016		Soil	S16-My10325	X												
29	JB-01_0.5-0.6	May 10, 2016		Soil	S16-My10326		X											
30	JB-02_0.5-0.6	May 10, 2016		Soil	S16-My10327		X											
31	JB-02_0.3-0.9	May 10, 2016		Soil	S16-My10328		X											
32	JB-02_1.0-1.1	May 10, 2016		Soil	S16-My10329		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
33	JB-02_0.9-1.5	May 10, 2016		Soil	S16-My10330		X											
34	JB-02_1.5-1.6	May 10, 2016		Soil	S16-My10331		X											
35	JB-02_1.5-2.0	May 10, 2016		Soil	S16-My10332		X											
36	JB-02_2.0-2.1	May 10, 2016		Soil	S16-My10333		X											
37	JB-03_0-0.2	May 10, 2016		Soil	S16-My10334		X											
38	JB-03_0.5-0.6	May 10, 2016		Soil	S16-My10335		X											
39	JB-04_0-0.15	May 10, 2016		Soil	S16-My10336		X											
40	JB-04_0-0.15	May 10, 2016		Soil	S16-My10337		X											
41	JB-04_0.15-0.25	May 10, 2016		Soil	S16-My10338		X											
42	JB-05_0-0.15	May 10, 2016		Soil	S16-My10339		X											
43	JB-05_0-0.6	May 10, 2016		Soil	S16-My10340		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
44	JB-05_0.6-0.7	May 10, 2016		Soil	S16-My10341		X											
45	JB-06_0-0.5	May 10, 2016		Soil	S16-My10342		X											
46	JB-06_0.5-0.6	May 10, 2016		Soil	S16-My10343		X											
47	JB-07_0-0.6	May 10, 2016		Soil	S16-My10344		X											
48	JB-07_0.5-0.6	May 10, 2016		Soil	S16-My10345		X											
49	JB-08_0.5-0.6	May 10, 2016		Soil	S16-My10346		X											
50	JB-08_0.3-0.9	May 10, 2016		Soil	S16-My10347		X											
51	JB-09_0-0.4	May 10, 2016		Soil	S16-My10348		X											
52	JB-09_0.5-0.6	May 10, 2016		Soil	S16-My10349		X											
53	JB-10_0-0.6	May 10, 2016		Soil	S16-My10350		X											
54	JB-10_0.6-0.7	May 10, 2016		Soil	S16-My10351		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
55	JB-10_0.6-1.1	May 10, 2016		Soil	S16-My10352		X											
56	JB-10_1.1-1.2	May 10, 2016		Soil	S16-My10353		X											
57	JB-10_1.1-1.9	May 10, 2016		Soil	S16-My10354		X											
58	JB-10_1.9-2.0	May 10, 2016		Soil	S16-My10355		X											
59	JB-11_0.2-0.7	May 10, 2016		Soil	S16-My10356		X											
60	JB-11_0.5-0.6	May 10, 2016		Soil	S16-My10357		X											
61	JB-12_0-0.15	May 10, 2016		Soil	S16-My10358		X											
62	JB-12_0-0.3	May 10, 2016		Soil	S16-My10359		X											
63	JB-12_0.5-0.6	May 10, 2016		Soil	S16-My10360		X											
64	JB-13_0-0.8	May 10, 2016		Soil	S16-My10361		X											
65	JB-13_0.8-0.9	May 10, 2016		Soil	S16-My10362		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
66	JB-14_0-0.15	May 10, 2016		Soil	S16-My10363		X											
67	JB-14_0-0.4	May 10, 2016		Soil	S16-My10364		X											
68	JB-14_0.5-0.6	May 10, 2016		Soil	S16-My10365		X											
69	JB-14_0.8-0.9	May 10, 2016		Soil	S16-My10366		X											
70	JB-15_0-0.15	May 10, 2016		Soil	S16-My10367		X											
71	JB-15_0-0.2	May 10, 2016		Soil	S16-My10368		X											
72	JB-15_0.5-0.6	May 10, 2016		Soil	S16-My10369		X											
73	JB-15_0.2-0.7	May 10, 2016		Soil	S16-My10370		X											
74	JB-16_0.5-0.6	May 10, 2016		Soil	S16-My10371		X											
75	JB-17_0-0.3	May 10, 2016		Soil	S16-My10372		X											
76	JB-17_0.5-0.6	May 10, 2016		Soil	S16-My10373		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
77	JB-18_0-0.6	May 10, 2016		Soil	S16-My10374		X											
78	JB-18_0.6-0.7	May 10, 2016		Soil	S16-My10375		X											
79	JB-19_0-0.6	May 10, 2016		Soil	S16-My10376		X											
80	JB-19_0.6-0.7	May 10, 2016		Soil	S16-My10377		X											
81	JB-20_0-0.4	May 10, 2016		Soil	S16-My10378		X											
82	JB-20_0.5-0.6	May 10, 2016		Soil	S16-My10379		X											
83	JB-21_0-0.15	May 10, 2016		Soil	S16-My10380		X											
84	JB-21_0-0.5	May 10, 2016		Soil	S16-My10381		X											
85	JB-21_0.5-0.6	May 10, 2016		Soil	S16-My10382		X											
86	JB-21_1.5-1.6	May 10, 2016		Soil	S16-My10383		X											
87	JB-22_0-0.15	May 10, 2016		Soil	S16-My10384		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
88	JB-22_0-0.5	May 10, 2016		Soil	S16-My10385		X											
89	JB-22_0.5-0.6	May 10, 2016		Soil	S16-My10386		X											
90	JB-23_0-0.5	May 10, 2016		Soil	S16-My10387		X											
91	JB-23_0.5-0.6	May 10, 2016		Soil	S16-My10388		X											
92	JB-24_0-0.15	May 10, 2016		Soil	S16-My10389		X											
93	JB-24_0-0.3	May 10, 2016		Soil	S16-My10390		X											
94	JB-24_0.5-0.6	May 10, 2016		Soil	S16-My10391		X											
95	JB-25_0.5-0.6	May 10, 2016		Soil	S16-My10392		X											
96	JB-26_0-0.15	May 10, 2016		Soil	S16-My10393		X											
97	JB-26_0-0.9	May 10, 2016		Soil	S16-My10394		X											
98	JB-26_0.5-0.6	May 10, 2016		Soil	S16-My10395		X											

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Company Name:	JBS & G Australia (NSW & WA) P/L	**Order No.:**		**Received:**	May 10, 2016 5:15 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	**Report #:**	499963	**Due:**	May 17, 2016
		Phone:	02 8245 0300	**Priority:**	5 Day
		Fax:		**Contact Name:**	Chris Bielby
Project Name:	RIVERSTONE PARADE MEATWORKS				
Project ID:	50648				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
99	JB-26_0.9-1.0	May 10, 2016		Soil	S16-My10396		X											
100	QS03	May 10, 2016		Soil	S16-My10397		X											
101	JB-12_1.0-1.1	May 10, 2016		Soil	S16-My10399		X											
Test Counts						7	73	2	2	2	7	2	9	2	19	2	2	5

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	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	
Dimethoate	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	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	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							
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							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25°C)	uS/cm	< 5			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	%	99			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	109			70-130	Pass	
Toluene	%	112			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	113			70-130	Pass	
o-Xylene	%	112			70-130	Pass	
Xylenes - Total	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	99			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	103			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	106			70-130	Pass	
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	107			70-130	Pass	
Chrysene	%	105			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	102			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	83			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	100			70-130	Pass	
Pyrene	%	99			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	92			70-130	Pass	
4.4'-DDD	%	92			70-130	Pass	
4.4'-DDE	%	100			70-130	Pass	
4.4'-DDT	%	87			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC			%	75			70-130	Pass	
Aldrin			%	96			70-130	Pass	
b-BHC			%	90			70-130	Pass	
d-BHC			%	92			70-130	Pass	
Dieldrin			%	95			70-130	Pass	
Endosulfan I			%	95			70-130	Pass	
Endosulfan II			%	94			70-130	Pass	
Endosulfan sulphate			%	90			70-130	Pass	
Endrin			%	98			70-130	Pass	
Endrin aldehyde			%	92			70-130	Pass	
Endrin ketone			%	90			70-130	Pass	
g-BHC (Lindane)			%	81			70-130	Pass	
Heptachlor			%	110			70-130	Pass	
Heptachlor epoxide			%	94			70-130	Pass	
Hexachlorobenzene			%	90			70-130	Pass	
Methoxychlor			%	86			70-130	Pass	
Toxaphene			%	82			70-130	Pass	
LCS - % Recovery									
Organophosphorus Pesticides									
Fenitrothion			%	94			70-130	Pass	
LCS - % Recovery									
Polychlorinated Biphenyls									
Aroclor-1260			%	70			70-130	Pass	
LCS - % Recovery									
Polychlorinated Biphenyls (PCB)									
Aroclor-1260			%	72			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16			%	105			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	97			70-130	Pass	
Cadmium			%	97			70-130	Pass	
Chromium			%	99			70-130	Pass	
Copper			%	97			70-130	Pass	
Lead			%	94			70-130	Pass	
Mercury			%	96			70-130	Pass	
Nickel			%	100			70-130	Pass	
Zinc			%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-My09022	NCP	%	72			70-130	Pass	
TRH C10-C14	S16-My10455	NCP	%	103			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My09022	NCP	%	93			70-130	Pass	
Toluene	S16-My09022	NCP	%	85			70-130	Pass	
Ethylbenzene	S16-My09022	NCP	%	82			70-130	Pass	
m&p-Xylenes	S16-My09022	NCP	%	86			70-130	Pass	
o-Xylene	S16-My09022	NCP	%	85			70-130	Pass	
Xylenes - Total	S16-My09022	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	S16-My09022	NCP	%	72			70-130	Pass	
TRH C6-C10	S16-My09022	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-My10277	NCP	%	82			70-130	Pass	
4.4'-DDD	S16-My10277	NCP	%	98			70-130	Pass	
4.4'-DDE	S16-My10277	NCP	%	86			70-130	Pass	
4.4'-DDT	S16-My10277	NCP	%	92			70-130	Pass	
a-BHC	S16-My10277	NCP	%	80			70-130	Pass	
Aldrin	S16-My10277	NCP	%	84			70-130	Pass	
b-BHC	S16-My10277	NCP	%	83			70-130	Pass	
d-BHC	S16-My10277	NCP	%	90			70-130	Pass	
Dieldrin	S16-My10277	NCP	%	96			70-130	Pass	
Endosulfan I	S16-My10277	NCP	%	86			70-130	Pass	
Endosulfan II	S16-My10277	NCP	%	93			70-130	Pass	
Endosulfan sulphate	S16-My10277	NCP	%	89			70-130	Pass	
Endrin	S16-My10277	NCP	%	94			70-130	Pass	
Endrin aldehyde	S16-My10277	NCP	%	105			70-130	Pass	
Endrin ketone	S16-My10277	NCP	%	93			70-130	Pass	
g-BHC (Lindane)	S16-My10277	NCP	%	83			70-130	Pass	
Heptachlor	S16-My10277	NCP	%	109			70-130	Pass	
Heptachlor epoxide	S16-My10277	NCP	%	88			70-130	Pass	
Hexachlorobenzene	S16-My10277	NCP	%	74			70-130	Pass	
Methoxychlor	S16-My10277	NCP	%	122			70-130	Pass	
Toxaphene	S16-My05597	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Fenitrothion	S16-My07626	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-My10455	NCP	%	128			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-My10303	CP	%	103			70-130	Pass	
Cadmium	S16-My10303	CP	%	104			70-130	Pass	
Chromium	S16-My10303	CP	%	118			70-130	Pass	
Copper	S16-My10303	CP	%	104			70-130	Pass	
Lead	S16-My10303	CP	%	98			70-130	Pass	
Mercury	S16-My10303	CP	%	103			70-130	Pass	
Nickel	S16-My10303	CP	%	105			70-130	Pass	
Zinc	S16-My10303	CP	%	98			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-My10310	CP	%	110			70-130	Pass	
Acenaphthylene	S16-My10310	CP	%	102			70-130	Pass	
Anthracene	S16-My10310	CP	%	102			70-130	Pass	
Benz(a)anthracene	S16-My10310	CP	%	111			70-130	Pass	
Benzo(a)pyrene	S16-My10310	CP	%	106			70-130	Pass	
Benzo(b&j)fluoranthene	S16-My10310	CP	%	127			70-130	Pass	
Benzo(g.h.i)perylene	S16-My10310	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	S16-My10310	CP	%	111			70-130	Pass	
Chrysene	S16-My10310	CP	%	111			70-130	Pass	
Dibenz(a.h)anthracene	S16-My10310	CP	%	89			70-130	Pass	
Fluoranthene	S16-My10310	CP	%	108			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	S16-My10310	CP	%	108			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-My10310	CP	%	87			70-130	Pass	
Naphthalene	S16-My10310	CP	%	107			70-130	Pass	
Phenanthrene	S16-My10310	CP	%	107			70-130	Pass	
Pyrene	S16-My10310	CP	%	105			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	S16-My09021	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My09021	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-My09021	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-My09021	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-My09021	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-My09021	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-My09021	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-My09021	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-My09021	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S16-My10298	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S16-My10298	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S16-My10298	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My10301	CP	mg/kg	12	8.6	35	30%	Fail	Q15
Cadmium	S16-My10301	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My10301	CP	mg/kg	19	13	38	30%	Fail	Q15
Copper	S16-My10301	CP	mg/kg	6.6	< 5	41	30%	Fail	Q15
Lead	S16-My10301	CP	mg/kg	13	9.3	37	30%	Fail	Q15
Mercury	S16-My10301	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	S16-My10301	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-My10301	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-My10303	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My10304	CP	%	6.5	5.7	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C)	S16-My10308	CP	uS/cm	46	58	24	30%	Pass	
pH (1:5 Aqueous extract)	S16-My10308	CP	pH Units	5.4	5.3	pass	30%	Pass	
Duplicate									
Ion Exchange Properties				Result 1	Result 2	RPD			
Cation Exchange Capacity	B16-My10781	NCP	meq/100g	8.1	8.5	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My10314	CP	%	8.7	9.1	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S16-My10316	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-My10316	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-My10316	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-My10316	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endrin aldehyde	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-My10316	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-My10316	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S16-My10316	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S16-My10316	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-My10316	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-My10316	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-My10316	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My10316	CP	mg/kg	5.1	3.8	30	30%	Pass	
Cadmium	S16-My10316	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My10316	CP	mg/kg	27	18	37	30%	Fail	Q15
Copper	S16-My10316	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S16-My10316	CP	mg/kg	16	17	3.0	30%	Pass	
Mercury	S16-My10316	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-My10316	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-My10316	CP	mg/kg	6.2	7.0	13	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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 QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Ivan Taylor	Senior Analyst-Metal (NSW)
Rhys Thomas	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: **Chris Bielby**

Report **499963-W**
Project name RIVERSTONE PARADE MEATWORKS
Project ID 50648
Received Date May 10, 2016

Client Sample ID			**TS**	**TB**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S16-My10317**	**S16-My10318**
Date Sampled			**May 10, 2016**	**May 10, 2016**
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.001	mg/L	109%	< 0.001
Toluene	0.001	mg/L	106%	< 0.001
Ethylbenzene	0.001	mg/L	105%	< 0.001
m&p-Xylenes	0.002	mg/L	106%	< 0.002
o-Xylene	0.001	mg/L	105%	< 0.001
Xylenes - Total	0.003	mg/L	106%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	99	99

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
JBS&G Suite 2			
BTEX	Sydney	May 10, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			

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Site # 1254 & 14271

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Order No.:
Report #: 499963
Phone: 02 8245 0300
Fax:

Received: May 10, 2016 5:15 PM
Due: May 17, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	JB-01_0-0.15	May 10, 2016		Soil	S16-My10298						X				X			X
2	JB-02_0-0.15	May 10, 2016		Soil	S16-My10299						X				X			X
3	JB-03_0-0.15	May 10, 2016		Soil	S16-My10300								X		X			
4	JB-06_0-0.15	May 10, 2016		Soil	S16-My10301								X		X			
5	JB-07_0-0.15	May 10, 2016		Soil	S16-My10302				X						X			
6	JB-08_0-0.15	May 10, 2016		Soil	S16-My10303						X				X			X
7	JB-08_0.9-1.0	May 10, 2016		Soil	S16-My10304								X		X			
8	JB-09_0-0.15	May 10, 2016		Soil	S16-My10305								X		X			
9	JB-10_0-0.15	May 10, 2016		Soil	S16-My10306					X	X	X			X		X	
10	JB-11_0-0.15	May 10, 2016		Soil	S16-My10307								X		X			

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
11	JB-13_0-0.15	May 10, 2016		Soil	S16-My10308			X					X		X	X		
12	JB-16_0-0.15	May 10, 2016		Soil	S16-My10309								X		X			
13	JB-17_0-0.15	May 10, 2016		Soil	S16-My10310				X						X			
14	JB-18_0-0.15	May 10, 2016		Soil	S16-My10311										X		X	
15	JB-19_0-0.15	May 10, 2016		Soil	S16-My10312								X		X			
16	JB-20_0-0.15	May 10, 2016		Soil	S16-My10313					X	X	X			X			
17	JB-23_0-0.15	May 10, 2016		Soil	S16-My10314			X					X		X	X		
18	JB-25_0-0.15	May 10, 2016		Soil	S16-My10315						X				X			X
19	QS01	May 10, 2016		Soil	S16-My10316						X				X			X
20	TS	May 10, 2016		Water	S16-My10317									X				
21	TB	May 10, 2016		Water	S16-My10318									X				

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Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Cation Exchange Capacity	Total Recoverable Hydrocarbons	JBS&G Suite 2
Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
22	JB-01_0-0.2	May 10, 2016		Soil	S16-My10319	X												
23	JB-02_0-0.3	May 10, 2016		Soil	S16-My10320	X												
24	JB-08_0-0.3	May 10, 2016		Soil	S16-My10321	X												
25	JB-11_0-0.2	May 10, 2016		Soil	S16-My10322	X												
26	JB-16_0-0.5	May 10, 2016		Soil	S16-My10323	X												
27	JB-25_0-0.6	May 10, 2016		Soil	S16-My10324	X												
28	QS02	May 10, 2016		Soil	S16-My10325	X												
29	JB-01_0.5-0.6	May 10, 2016		Soil	S16-My10326		X											
30	JB-02_0.5-0.6	May 10, 2016		Soil	S16-My10327		X											
31	JB-02_0.3-0.9	May 10, 2016		Soil	S16-My10328		X											
32	JB-02_1.0-1.1	May 10, 2016		Soil	S16-My10329		X											

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Project Name: RIVERSTONE PARADE MEATWORKS
Project ID: 50648

Order No.:
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Phone: 02 8245 0300
Fax:

Received: May 10, 2016 5:15 PM
Due: May 17, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
33	JB-02_0.9-1.5	May 10, 2016		Soil	S16-My10330		X											
34	JB-02_1.5-1.6	May 10, 2016		Soil	S16-My10331		X											
35	JB-02_1.5-2.0	May 10, 2016		Soil	S16-My10332		X											
36	JB-02_2.0-2.1	May 10, 2016		Soil	S16-My10333		X											
37	JB-03_0-0.2	May 10, 2016		Soil	S16-My10334		X											
38	JB-03_0.5-0.6	May 10, 2016		Soil	S16-My10335		X											
39	JB-04_0-0.15	May 10, 2016		Soil	S16-My10336		X											
40	JB-04_0-0.15	May 10, 2016		Soil	S16-My10337		X											
41	JB-04_0.15-0.25	May 10, 2016		Soil	S16-My10338		X											
42	JB-05_0-0.15	May 10, 2016		Soil	S16-My10339		X											
43	JB-05_0-0.6	May 10, 2016		Soil	S16-My10340		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
44	JB-05_0.6-0.7	May 10, 2016		Soil	S16-My10341		X											
45	JB-06_0-0.5	May 10, 2016		Soil	S16-My10342		X											
46	JB-06_0.5-0.6	May 10, 2016		Soil	S16-My10343		X											
47	JB-07_0-0.6	May 10, 2016		Soil	S16-My10344		X											
48	JB-07_0.5-0.6	May 10, 2016		Soil	S16-My10345		X											
49	JB-08_0.5-0.6	May 10, 2016		Soil	S16-My10346		X											
50	JB-08_0.3-0.9	May 10, 2016		Soil	S16-My10347		X											
51	JB-09_0-0.4	May 10, 2016		Soil	S16-My10348		X											
52	JB-09_0.5-0.6	May 10, 2016		Soil	S16-My10349		X											
53	JB-10_0-0.6	May 10, 2016		Soil	S16-My10350		X											
54	JB-10_0.6-0.7	May 10, 2016		Soil	S16-My10351		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
55	JB-10_0.6-1.1	May 10, 2016		Soil	S16-My10352		X											
56	JB-10_1.1-1.2	May 10, 2016		Soil	S16-My10353		X											
57	JB-10_1.1-1.9	May 10, 2016		Soil	S16-My10354		X											
58	JB-10_1.9-2.0	May 10, 2016		Soil	S16-My10355		X											
59	JB-11_0.2-0.7	May 10, 2016		Soil	S16-My10356		X											
60	JB-11_0.5-0.6	May 10, 2016		Soil	S16-My10357		X											
61	JB-12_0-0.15	May 10, 2016		Soil	S16-My10358		X											
62	JB-12_0-0.3	May 10, 2016		Soil	S16-My10359		X											
63	JB-12_0.5-0.6	May 10, 2016		Soil	S16-My10360		X											
64	JB-13_0-0.8	May 10, 2016		Soil	S16-My10361		X											
65	JB-13_0.8-0.9	May 10, 2016		Soil	S16-My10362		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
66	JB-14_0-0.15	May 10, 2016		Soil	S16-My10363		X											
67	JB-14_0-0.4	May 10, 2016		Soil	S16-My10364		X											
68	JB-14_0.5-0.6	May 10, 2016		Soil	S16-My10365		X											
69	JB-14_0.8-0.9	May 10, 2016		Soil	S16-My10366		X											
70	JB-15_0-0.15	May 10, 2016		Soil	S16-My10367		X											
71	JB-15_0-0.2	May 10, 2016		Soil	S16-My10368		X											
72	JB-15_0.5-0.6	May 10, 2016		Soil	S16-My10369		X											
73	JB-15_0.2-0.7	May 10, 2016		Soil	S16-My10370		X											
74	JB-16_0.5-0.6	May 10, 2016		Soil	S16-My10371		X											
75	JB-17_0-0.3	May 10, 2016		Soil	S16-My10372		X											
76	JB-17_0.5-0.6	May 10, 2016		Soil	S16-My10373		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
77	JB-18_0-0.6	May 10, 2016		Soil	S16-My10374		X											
78	JB-18_0.6-0.7	May 10, 2016		Soil	S16-My10375		X											
79	JB-19_0-0.6	May 10, 2016		Soil	S16-My10376		X											
80	JB-19_0.6-0.7	May 10, 2016		Soil	S16-My10377		X											
81	JB-20_0-0.4	May 10, 2016		Soil	S16-My10378		X											
82	JB-20_0.5-0.6	May 10, 2016		Soil	S16-My10379		X											
83	JB-21_0-0.15	May 10, 2016		Soil	S16-My10380		X											
84	JB-21_0-0.5	May 10, 2016		Soil	S16-My10381		X											
85	JB-21_0.5-0.6	May 10, 2016		Soil	S16-My10382		X											
86	JB-21_1.5-1.6	May 10, 2016		Soil	S16-My10383		X											
87	JB-22_0-0.15	May 10, 2016		Soil	S16-My10384		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
88	JB-22_0-0.5	May 10, 2016		Soil	S16-My10385		X											
89	JB-22_0.5-0.6	May 10, 2016		Soil	S16-My10386		X											
90	JB-23_0-0.5	May 10, 2016		Soil	S16-My10387		X											
91	JB-23_0.5-0.6	May 10, 2016		Soil	S16-My10388		X											
92	JB-24_0-0.15	May 10, 2016		Soil	S16-My10389		X											
93	JB-24_0-0.3	May 10, 2016		Soil	S16-My10390		X											
94	JB-24_0.5-0.6	May 10, 2016		Soil	S16-My10391		X											
95	JB-25_0.5-0.6	May 10, 2016		Soil	S16-My10392		X											
96	JB-26_0-0.15	May 10, 2016		Soil	S16-My10393		X											
97	JB-26_0-0.9	May 10, 2016		Soil	S16-My10394		X											
98	JB-26_0.5-0.6	May 10, 2016		Soil	S16-My10395		X											

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Melbourne Laboratory - NATA Site # 1254 & 14271																X		
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																		
External Laboratory																		
99	JB-26_0.9-1.0	May 10, 2016		Soil	S16-My10396		X											
100	QS03	May 10, 2016		Soil	S16-My10397		X											
101	JB-12_1.0-1.1	May 10, 2016		Soil	S16-My10399		X											
Test Counts						7	73	2	2	2	7	2	9	2	19	2	2	5

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
LCS - % Recovery									
BTEX									
Benzene			%	94			70-130	Pass	
Toluene			%	91			70-130	Pass	
Ethylbenzene			%	92			70-130	Pass	
m&p-Xylenes			%	93			70-130	Pass	
o-Xylene			%	98			70-130	Pass	
Xylenes - Total			%	95			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My06875	NCP	%	84			70-130	Pass	
Toluene	S16-My06875	NCP	%	87			70-130	Pass	
Ethylbenzene	S16-My06875	NCP	%	91			70-130	Pass	
m&p-Xylenes	S16-My06875	NCP	%	88			70-130	Pass	
o-Xylene	S16-My06875	NCP	%	88			70-130	Pass	
Xylenes - Total	S16-My06875	NCP	%	88			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My06874	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-My06874	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-My06874	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-My06874	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-My06874	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-My06874	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone Parade
DATE NEEDED BY: Standard TAT

LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) CBielby@jbsg.com.au; (3) e.nowley@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

50 2310

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals*	Asbestos	TRH	BTEX	PAHs	OCPs	PCBs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES
STP01 - 0.3	SOIL	26.5		Jar + bag ice		X	X	X	X	X	X	X			*Heavy Metals = 8 Metals
STP02 - 1.0															
STP03 - 1.0															
STP04 - 1.0								X	X	X					
STP05 - 1.0															
* STP06 - 1.0								X	X	X	X	X			
STP06 - 2.0								X	X	X					'Asbestos = WA NEPC 500mL
STP07 - 1.5								X	X	X					
STP08 - 1.0															
STP08 - 2.0								X	X	X	X	X			
STP09 - 1.0															
STP09 - 1.5								X	X	X					
STP 10 - 1.0															
STP11 - 1.0								X	X	X	X	X			
STP12 - 2.0															
STP12 - 3.0								X	X	X	X	X			
STP 13 - 1.0															
STP 13 - 2.0								X	X	X					
STP 14 - 1.5															

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 27.5.16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: Ellen Wu 270516 DATE: OF: ESlingt. 1520	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 - Chain of Custody - Generic

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone Parade
DATE NEEDED BY: Standard
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) cberby@jbsg.com.au; (3) ehowley@jbsg.com.au

LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals*	Asbestos'	TRH	BTEX	PAHs	OCPs	PCBs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
STP14-2.5	SOIL	26.5		Jar + bag + ice		X	X								* Heavy Metals = 8 metals.
STP15-1.0								X	X	X					
STP16-1.0															
STP17-1.0								X	X	X					
STP17-2.0															
STP18-1.0															' Asbestos = WA NEPC 500mL
STP18-1.5								X	X	X					
STP19-1.0								X	X	X	X	X			
STP20-0.8															
STP21-1.0								X	X	X	X	X			
STP21-2.0															
STP22-1.0															
STP22-1.5								X	X	X	X	X			
STP23-0.6		27.3						X	X	X					
STP24-0.6															
STP25-0.6								X	X	X					
STP26-1.0															
STP27-0.4								X	X	X	X	X			
QC01		26.5						X	X	X	X	X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 27.5.16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: DATE: 27/05/16 1520 OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 – Chain of Custody - Generic

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 50640	LABORATORY BATCH NO.:
PROJECT NAME: Riverstone Parade	SAMPLERS: EH
DATE NEEDED BY: standard	QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) ....ehowley....@jbsg.com.au; (3) ....cheathley....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals	Asbestos	TRH	BTEX	PAHs	OCPs	PCBs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: 502310
QS02	SOIL	26.5		Jar Ziploc ice		X	X	X	X	X	X	X			
Trip S	water	24.5		2xVials					X						
Trip B	↓	↓		2xVials					X						

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 27.5.16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: DATE: 270516 1520 OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 – Chain of Custody - Generic

eurofins | mgt

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

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

Sample Receipt Advice

Company name:	**JBS & G Australia (NSW & WA) P/L**
Contact name:	Chris Bielby
Project name:	RIVERSTONE PARADE
Project ID:	50648
COC number:	07708-10
Turn around time:	5 Day
Date/Time received:	May 27, 2016 3:20 PM
Eurofins | mgt reference:	**502310**

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 : .1 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Sample ID discrepancy COC: STP07_1.5 JAR/BAG: STP07_1.0; COC: STP18_1.5 JAR/BAG: STP18_2.5 IDs as per COC

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Chris Bielby - cbielby@jbsg.com.au.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Chris Bielby
Report	502310-AID
Project Name	RIVERSTONE PARADE
Project ID	50648
Received Date	May 27, 2016
Date Reported	Jun 03, 2016

Methodology:

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

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.

Project Name RIVERSTONE PARADE
Project ID 50648
Date Sampled May 26, 2016 to May 27, 2016
Report 502310-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP01_0.3	16-My28192	May 26, 2016	Approximate Sample 895g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP02_1.0	16-My28193	May 26, 2016	Approximate Sample 857g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP03_1.0	16-My28194	May 26, 2016	Approximate Sample 929g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP04_1.0	16-My28195	May 26, 2016	Approximate Sample 927g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP05_1.0	16-My28196	May 26, 2016	Approximate Sample 729g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP06_1.0	16-My28197	May 26, 2016	Approximate Sample 632g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP06_2.0	16-My28198	May 26, 2016	Approximate Sample 807g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP07_1.5	16-My28199	May 26, 2016	Approximate Sample 703g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP08_1.0	16-My28200	May 26, 2016	Approximate Sample 835g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP08_2.0	16-My28201	May 26, 2016	Approximate Sample 760g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP09_1.0	16-My28202	May 26, 2016	Approximate Sample 692g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP09_1.5	16-My28203	May 26, 2016	Approximate Sample 596g Sample consisted of: Brown coarse grain sandy soil and rocks	ACM: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.3309g Total estimated asbestos content in ACM = 0.3496g* Total estimated asbestos concentration in ACM = 0.0587% w/w* Organic fibre detected.[M11]
STP10_1.0	16-My28204	May 26, 2016	Approximate Sample 728g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP11_1.0	16-My28205	May 26, 2016	Approximate Sample 779g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP12_2.0	16-My28206	May 26, 2016	Approximate Sample 867g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP12_3.0	16-My28207	May 26, 2016	Approximate Sample 901g Sample consisted of: Brown coarse grain sandy soil and rocks	AF: Chrysotile asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0007g* Estimated asbestos content in AF = 0.0007g* Total estimated asbestos concentration in AF = 0.0001% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected.[M11]
STP13_1.0	16-My28208	May 26, 2016	Approximate Sample 712g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP13_2.0	16-My28209	May 26, 2016	Approximate Sample 873g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP14_1.5	16-My28210	May 26, 2016	Approximate Sample 781g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP14_2.5	16-My28211	May 26, 2016	Approximate Sample 843g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP15_1.0	16-My28212	May 26, 2016	Approximate Sample 827g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP16_1.0	16-My28213	May 26, 2016	Approximate Sample 847g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP17_1.0	16-My28214	May 26, 2016	Approximate Sample 929g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP17_2.0	16-My28215	May 26, 2016	Approximate Sample 978g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP18_1.0	16-My28216	May 26, 2016	Approximate Sample 829g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP18_1.5	16-My28217	May 26, 2016	Approximate Sample 813g Sample consisted of: Brown coarse grain sandy soil and rocks	AF: Chrysotile asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0008g* Estimated asbestos content in AF = 0.0008g* Total estimated asbestos concentration in AF = 0.0001% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected.[M11]
STP19_1.0	16-My28218	May 26, 2016	Approximate Sample 1154g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP20_0.8	16-My28219	May 26, 2016	Approximate Sample 1009g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP21_1.0	16-My28220	May 26, 2016	Approximate Sample 844g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP21_2.0	16-My28221	May 26, 2016	Approximate Sample 982g Sample consisted of: Brown coarse grain sandy soil and rocks	AF: Chrysotile asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0554g* Estimated asbestos content in AF = 0.0543g* Total estimated asbestos concentration in AF = 0.0055% w/w* Organic fibre detected.[M11]
STP22_1.0	16-My28222	May 26, 2016	Approximate Sample 982g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP22_1.5	16-My28223	May 26, 2016	Approximate Sample 998g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP23_0.6	16-My28224	May 27, 2016	Approximate Sample 894g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP24_0.6	16-My28225	May 27, 2016	Approximate Sample 840g Sample consisted of: Brown coarse grain sandy soil and rocks	AF: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of AF = 0.0916g Estimated asbestos content in AF = 0.0183g* Total estimated asbestos concentration in AF = 0.0022% w/w* Organic fibre detected.[M11]
STP25_0.6	16-My28226	May 27, 2016	Approximate Sample 859g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP26_1.0	16-My28227	May 27, 2016	Approximate Sample 668g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP27_0.4	16-My28228	May 27, 2016	Approximate Sample 1012g Sample consisted of: Brown coarse grain sandy soil and rocks	AF: Amosite and crocidolite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0048g* Estimated asbestos content in AF = 0.0048g* Total estimated asbestos concentration in AF = 0.0005% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected.[M11]
QS01	16-My28229	May 26, 2016	Approximate Sample 786g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
QS02	16-My28230	May 26, 2016	Approximate Sample 840g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	May 28, 2016	Indefinite

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

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

Sydney
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Lane Cove West NSW 2066
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NATA # 1261 Site # 18217

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE PARADE
Project ID: 50648

Order No.:
Report #: 502310
Phone: 02 8245 0300
Fax:

Received: May 27, 2016 3:20 PM
Due: Jun 3, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	STP01_0.3	May 26, 2016		Soil	S16-My28192	X	X	X	X	X	X	X	X
2	STP02_1.0	May 26, 2016		Soil	S16-My28193	X				X		X	
3	STP03_1.0	May 26, 2016		Soil	S16-My28194	X				X		X	
4	STP04_1.0	May 26, 2016		Soil	S16-My28195	X	X			X	X	X	X
5	STP05_1.0	May 26, 2016		Soil	S16-My28196	X				X		X	
6	STP06_1.0	May 26, 2016		Soil	S16-My28197	X	X	X	X	X	X	X	X
7	STP06_2.0	May 26, 2016		Soil	S16-My28198	X	X			X	X	X	X
8	STP07_1.5	May 26, 2016		Soil	S16-My28199	X	X			X	X	X	X
9	STP08_1.0	May 26, 2016		Soil	S16-My28200	X				X		X	
10	STP08_2.0	May 26, 2016		Soil	S16-My28201	X	X	X	X	X	X	X	X

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Site # 1254 & 14271

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NATA # 1261 Site # 20794

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE PARADE
Project ID: 50648

Order No.:
Report #: 502310
Phone: 02 8245 0300
Fax:

Received: May 27, 2016 3:20 PM
Due: Jun 3, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
11	STP09_1.0	May 26, 2016		Soil	S16-My28202	X				X		X	
12	STP09_1.5	May 26, 2016		Soil	S16-My28203	X	X			X	X	X	X
13	STP10_1.0	May 26, 2016		Soil	S16-My28204	X				X		X	
14	STP11_1.0	May 26, 2016		Soil	S16-My28205	X	X	X	X	X	X	X	X
15	STP12_2.0	May 26, 2016		Soil	S16-My28206	X				X		X	
16	STP12_3.0	May 26, 2016		Soil	S16-My28207	X	X	X	X	X	X	X	X
17	STP13_1.0	May 26, 2016		Soil	S16-My28208	X				X		X	
18	STP13_2.0	May 26, 2016		Soil	S16-My28209	X	X			X	X	X	X
19	STP14_1.5	May 26, 2016		Soil	S16-My28210	X				X		X	
20	STP14_2.5	May 26, 2016		Soil	S16-My28211	X				X		X	
21	STP15_1.0	May 26, 2016		Soil	S16-My28212	X	X			X	X	X	X

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Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
22	STP16_1.0	May 26, 2016		Soil	S16-My28213	X				X		X	
23	STP17_1.0	May 26, 2016		Soil	S16-My28214	X	X			X	X	X	X
24	STP17_2.0	May 26, 2016		Soil	S16-My28215	X				X		X	
25	STP18_1.0	May 26, 2016		Soil	S16-My28216	X				X		X	
26	STP18_1.5	May 26, 2016		Soil	S16-My28217	X	X			X	X	X	X
27	STP19_1.0	May 26, 2016		Soil	S16-My28218	X	X	X	X	X	X	X	X
28	STP20_0.8	May 26, 2016		Soil	S16-My28219	X				X		X	
29	STP21_1.0	May 26, 2016		Soil	S16-My28220	X	X	X	X	X	X	X	X
30	STP21_2.0	May 26, 2016		Soil	S16-My28221	X				X		X	
31	STP22_1.0	May 26, 2016		Soil	S16-My28222	X				X		X	
32	STP22_1.5	May 26, 2016		Soil	S16-My28223	X	X	X	X	X	X	X	X

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Project Name: RIVERSTONE PARADE
Project ID: 50648

Order No.:
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Phone: 02 8245 0300
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Received: May 27, 2016 3:20 PM
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Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
33	STP23_0.6	May 27, 2016		Soil	S16-My28224	X	X			X	X	X	X
34	STP24_0.6	May 27, 2016		Soil	S16-My28225	X				X		X	
35	STP25_0.6	May 27, 2016		Soil	S16-My28226	X	X			X	X	X	X
36	STP26_1.0	May 27, 2016		Soil	S16-My28227	X				X		X	
37	STP27_0.4	May 27, 2016		Soil	S16-My28228	X	X	X	X	X	X	X	X
38	QS01	May 26, 2016		Soil	S16-My28229	X	X	X	X	X	X	X	X
39	QS02	May 26, 2016		Soil	S16-My28230	X	X	X	X	X	X	X	X
40	TRIPS	May 24, 2016		Water	S16-My28231						X		
41	TRIPB	May 24, 2016		Water	S16-My28232						X		
Test Counts						39	21	11	11	39	23	39	21

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

Units

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

Terms

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

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable
M11	NATA accreditation does not cover the performance of this service.

Authorised by:

Rhys Thomas Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service
Uncertainty data is available on request

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: **Chris Bielby**

Report **502310-S**
Project name RIVERSTONE PARADE
Project ID 50648
Received Date May 27, 2016

Client Sample ID			**STP01_0.3**	**STP02_1.0**	**STP03_1.0**	**STP04_1.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My28192**	**S16-My28193**	**S16-My28194**	**S16-My28195**
Date Sampled			**May 26, 2016**	**May 26, 2016**	**May 26, 2016**	**May 26, 2016**
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	%	97	-	-	95
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	< 50
Polycyclic Aromatic Hydrocarbons						
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
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

Client Sample ID			STP01_0.3	STP02_1.0	STP03_1.0	STP04_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28192	S16-My28193	S16-My28194	S16-My28195
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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
2-Fluorobiphenyl (surr.)	1	%	94	-	-	90
p-Terphenyl-d14 (surr.)	1	%	104	-	-	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	-	-	-
Dibutylchlorendate (surr.)	1	%	81	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	124	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
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	-	-	-
Dibutylchlorendate (surr.)	1	%	81	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	124	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100

Client Sample ID			STP01_0.3	STP02_1.0	STP03_1.0	STP04_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28192	S16-My28193	S16-My28194	S16-My28195
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	7.6	5.9	11	7.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	14
Copper	5	mg/kg	110	12	60	17
Lead	5	mg/kg	11	5.4	9.9	19
Mercury	0.05	mg/kg	0.08	0.06	0.07	< 0.05
Nickel	5	mg/kg	< 5	5.4	< 5	6.3
Zinc	5	mg/kg	30	27	17	55
% Moisture	1	%	19	13	14	15

Client Sample ID			STP05_1.0	STP06_1.0	STP06_2.0	STP07_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28196	S16-My28197	S16-My28198	S16-My28199
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	89	92	93
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 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	< 0.5
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

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	STP05_1.0 Soil S16-My28196 May 26, 2016	STP06_1.0 Soil S16-My28197 May 26, 2016	STP06_2.0 Soil S16-My28198 May 26, 2016	STP07_1.5 Soil S16-My28199 May 26, 2016
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	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	93	88	89
p-Terphenyl-d14 (surr.)	1	%	-	104	103	104
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Dibutylchlorendate (surr.)	1	%	-	75	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	115	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
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	-	-
Dibutylchlorendate (surr.)	1	%	-	75	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	115	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100

Client Sample ID			STP05_1.0	STP06_1.0	STP06_2.0	STP07_1.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My28196**	**S16-My28197**	**S16-My28198**	**S16-My28199**
Date Sampled			**May 26, 2016**	**May 26, 2016**	**May 26, 2016**	**May 26, 2016**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	6.4	5.6	9.2	6.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	< 5	15	16
Copper	5	mg/kg	19	5.5	20	22
Lead	5	mg/kg	19	< 5	42	34
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	7.3	< 5	9.0	7.5
Zinc	5	mg/kg	47	5.1	64	53
% Moisture	1	%	21	19	21	22

Client Sample ID			STP08_1.0	STP08_2.0	STP09_1.0	STP09_1.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My28200**	**S16-My28201**	**S16-My28202**	**S16-My28203**
Date Sampled			**May 26, 2016**	**May 26, 2016**	**May 26, 2016**	**May 26, 2016**
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	%	-	95	-	91
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
Polycyclic Aromatic Hydrocarbons						
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
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

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	STP08_1.0 Soil S16-My28200 May 26, 2016	STP08_2.0 Soil S16-My28201 May 26, 2016	STP09_1.0 Soil S16-My28202 May 26, 2016	STP09_1.5 Soil S16-My28203 May 26, 2016
Polycyclic Aromatic Hydrocarbons						
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
2-Fluorobiphenyl (surr.)	1	%	-	87	-	86
p-Terphenyl-d14 (surr.)	1	%	-	101	-	99
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Dibutylchlorendate (surr.)	1	%	-	80	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	127	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
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	-	-
Dibutylchlorendate (surr.)	1	%	-	80	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	127	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100

Client Sample ID			STP08_1.0	STP08_2.0	STP09_1.0	STP09_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28200	S16-My28201	S16-My28202	S16-My28203
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	5.9	6.6	8.0	8.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	19	10	15
Copper	5	mg/kg	15	11	19	23
Lead	5	mg/kg	23	26	63	87
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.08	0.11
Nickel	5	mg/kg	< 5	8.8	< 5	6.9
Zinc	5	mg/kg	31	64	87	110
% Moisture	1	%	17	17	17	22

Client Sample ID			STP10_1.0	STP11_1.0	STP12_2.0	STP12_3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28204	S16-My28205	S16-My28206	S16-My28207
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
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	-	190
TRH C29-C36	50	mg/kg	-	< 50	-	270
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	460
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	%	-	94	-	94
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	4.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	4.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	4.5
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	-	2.3
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	3.1
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	2.2
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	2.0
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	2.0
Chrysene	0.5	mg/kg	-	< 0.5	-	2.2

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	STP10_1.0 Soil S16-My28204 May 26, 2016	STP11_1.0 Soil S16-My28205 May 26, 2016	STP12_2.0 Soil S16-My28206 May 26, 2016	STP12_3.0 Soil S16-My28207 May 26, 2016
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	0.6
Fluoranthene	0.5	mg/kg	-	< 0.5	-	3.7
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	1.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	1.5
Pyrene	0.5	mg/kg	-	< 0.5	-	3.9
Total PAH*	0.5	mg/kg	-	< 0.5	-	25
2-Fluorobiphenyl (surr.)	1	%	-	85	-	88
p-Terphenyl-d14 (surr.)	1	%	-	98	-	94
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	-	< 0.2
Toxaphene	1	mg/kg	-	< 1	-	< 1
Dibutylchlorendate (surr.)	1	%	-	62	-	73
Tetrachloro-m-xylene (surr.)	1	%	-	102	-	104
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	< 0.1
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	%	-	62	-	73
Tetrachloro-m-xylene (surr.)	1	%	-	102	-	104
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	430
TRH >C34-C40	100	mg/kg	-	< 100	-	100

Client Sample ID			STP10_1.0	STP11_1.0	STP12_2.0	STP12_3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28204	S16-My28205	S16-My28206	S16-My28207
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	15	9.7	6.6	9.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	16	15	12
Copper	5	mg/kg	12	15	75	58
Lead	5	mg/kg	21	20	260	290
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.30	0.35
Nickel	5	mg/kg	10	8.1	10	8.2
Zinc	5	mg/kg	38	38	210	230
% Moisture	1	%	16	15	13	16

Client Sample ID			STP13_1.0	STP13_2.0	STP14_1.5	STP14_2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28208	S16-My28209	S16-My28210	S16-My28211
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
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	-	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	-
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	%	-	95	-	-
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
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	-	< 0.5	-	-
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	-	-

Client Sample ID			STP13_1.0	STP13_2.0	STP14_1.5	STP14_2.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My28208**	**S16-My28209**	**S16-My28210**	**S16-My28211**
Date Sampled			**May 26, 2016**	**May 26, 2016**	**May 26, 2016**	**May 26, 2016**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
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	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	101	-	-
p-Terphenyl-d14 (surr.)	1	%	-	103	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
Heavy Metals						
Arsenic	2	mg/kg	8.0	9.2	7.1	9.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	14	15	12	24
Copper	5	mg/kg	22	25	26	22
Lead	5	mg/kg	30	38	67	54
Mercury	0.05	mg/kg	0.06	0.11	0.20	0.25
Nickel	5	mg/kg	10	5.9	5.4	6.0
Zinc	5	mg/kg	61	100	95	93
% Moisture	1	%	17	18	17	14

Client Sample ID			STP15_1.0	STP16_1.0	STP17_1.0	STP17_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-My28212**	**S16-My28213**	**S16-My28214**	**S16-My28215**
Date Sampled			**May 26, 2016**	**May 26, 2016**	**May 26, 2016**	**May 26, 2016**
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	-	110	-
TRH C29-C36	50	mg/kg	< 50	-	150	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	260	-
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	%	93	-	95	-

Client Sample ID			STP15_1.0	STP16_1.0	STP17_1.0	STP17_2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28212	S16-My28213	S16-My28214	S16-My28215
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	3.0	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	3.2	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	3.5	-
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	-	0.6	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	1.7	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	2.3	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	2.0	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	1.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	1.6	-
Chrysene	0.5	mg/kg	< 0.5	-	1.7	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	3.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	1.1	-
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	1.9	-
Pyrene	0.5	mg/kg	< 0.5	-	3.6	-
Total PAH*	0.5	mg/kg	< 0.5	-	21.5	-
2-Fluorobiphenyl (surr.)	1	%	90	-	91	-
p-Terphenyl-d14 (surr.)	1	%	104	-	99	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	240	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	15	10	8.6	6.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	28	14	16	11
Copper	5	mg/kg	12	20	72	26
Lead	5	mg/kg	20	32	350	310
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.41	0.16
Nickel	5	mg/kg	8.4	5.8	8.3	< 5
Zinc	5	mg/kg	43	99	230	120
% Moisture	1	%	15	15	8.6	13

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	STP18_1.0 Soil S16-My28216 May 26, 2016	STP18_1.5 Soil S16-My28217 May 26, 2016	STP19_1.0 Soil S16-My28218 May 26, 2016	STP20_0.8 Soil S16-My28219 May 26, 2016
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	130	-
TRH C29-C36	50	mg/kg	-	< 50	100	-
TRH C10-36 (Total)	50	mg/kg	-	< 50	230	-
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	%	-	96	98	-
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 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	3.4	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	3.7	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	3.9	-
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	0.9	-
Anthracene	0.5	mg/kg	-	< 0.5	1.4	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	2.9	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	2.6	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	1.7	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	1.3	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	2.0	-
Chrysene	0.5	mg/kg	-	< 0.5	2.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	-	< 0.5	6.9	-
Fluorene	0.5	mg/kg	-	< 0.5	0.6	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	1.1	-
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	-	< 0.5	6.0	-
Pyrene	0.5	mg/kg	-	< 0.5	6.0	-
Total PAH*	0.5	mg/kg	-	< 0.5	35.9	-
2-Fluorobiphenyl (surr.)	1	%	-	87	88	-
p-Terphenyl-d14 (surr.)	1	%	-	99	97	-
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	-

Client Sample ID			STP18_1.0	STP18_1.5	STP19_1.0	STP20_0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28216	S16-My28217	S16-My28218	S16-My28219
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Toxaphene	1	mg/kg	-	-	< 1	-
Dibutylchlorendate (surr.)	1	%	-	-	72	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	90	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
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	-
Dibutylchlorendate (surr.)	1	%	-	-	72	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	90	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	< 100	220	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	6.1	17	5.8	9.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	15	8.1	16
Copper	5	mg/kg	14	13	32	9.6
Lead	5	mg/kg	17	18	140	8.5
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.26	< 0.05
Nickel	5	mg/kg	6.7	< 5	< 5	< 5
Zinc	5	mg/kg	39	29	130	25
% Moisture	1	%	15	22	11	16

Client Sample ID			STP21_1.0	STP21_2.0	STP22_1.0	STP22_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28220	S16-My28221	S16-My28222	S16-My28223
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
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	820	-	-	< 50
TRH C29-C36	50	mg/kg	440	-	-	< 50
TRH C10-36 (Total)	50	mg/kg	1260	-	-	< 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	%	96	-	-	93
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	26	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	26	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	26	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	2.8	-	-	< 0.5
Anthracene	0.5	mg/kg	9.2	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	22	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	17	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	13	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	8.2	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	13	-	-	< 0.5
Chrysene	0.5	mg/kg	19	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	3.1	-	-	< 0.5
Fluoranthene	0.5	mg/kg	51	-	-	< 0.5
Fluorene	0.5	mg/kg	2.4	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	7.3	-	-	< 0.5
Naphthalene	0.5	mg/kg	0.8	-	-	< 0.5
Phenanthrene	0.5	mg/kg	39	-	-	< 0.5
Pyrene	0.5	mg/kg	44	-	-	< 0.5
Total PAH*	0.5	mg/kg	251.8	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	87	-	-	94
p-Terphenyl-d14 (surr.)	1	%	96	-	-	108
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

Client Sample ID			STP21_1.0	STP21_2.0	STP22_1.0	STP22_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28220	S16-My28221	S16-My28222	S16-My28223
Date Sampled			May 26, 2016	May 26, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Toxaphene	1	mg/kg	< 1	-	-	< 1
Dibutylchlorendate (surr.)	1	%	73	-	-	76
Tetrachloro-m-xylene (surr.)	1	%	92	-	-	100
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	< 0.1
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	%	73	-	-	76
Tetrachloro-m-xylene (surr.)	1	%	92	-	-	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	1200	-	-	< 100
TRH >C34-C40	100	mg/kg	150	-	-	< 100
Heavy Metals						
Arsenic	2	mg/kg	6.5	12	11	6.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.6	13	18	11
Copper	5	mg/kg	42	600	7.5	10
Lead	5	mg/kg	230	260	19	24
Mercury	0.05	mg/kg	0.63	0.57	< 0.05	0.07
Nickel	5	mg/kg	5.3	6.9	< 5	< 5
Zinc	5	mg/kg	260	430	27	30
% Moisture	1	%	11	13	13	14

Client Sample ID			STP23_0.6	STP24_0.6	STP25_0.6	STP26_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28224	S16-My28225	S16-My28226	S16-My28227
Date Sampled			May 27, 2016	May 27, 2016	May 27, 2016	May 27, 2016
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	%	95	-	90	-
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
Polycyclic Aromatic Hydrocarbons						
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	-
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	-
2-Fluorobiphenyl (surr.)	1	%	88	-	89	-
p-Terphenyl-d14 (surr.)	1	%	100	-	104	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-

Client Sample ID			STP23_0.6	STP24_0.6	STP25_0.6	STP26_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28224	S16-My28225	S16-My28226	S16-My28227
Date Sampled			May 27, 2016	May 27, 2016	May 27, 2016	May 27, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	6.6	7.5	6.7	9.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	13	13	13	19
Copper	5	mg/kg	8.8	21	24	37
Lead	5	mg/kg	14	23	21	23
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	8.3	9.5	6.8
Zinc	5	mg/kg	22	63	55	120
% Moisture	1	%	10	10	14	24

Client Sample ID			STP27_0.4	QS01	QS02
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28228	S16-My28229	S16-My28230
Date Sampled			May 27, 2016	May 26, 2016	May 26, 2016
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	67
TRH C29-C36	50	mg/kg	< 50	< 50	67
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	134
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	%	95	95	96
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	2.1
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	2.4
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	2.6
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	1.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	1.6
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	1.7
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	1.3
Chrysene	0.5	mg/kg	< 0.5	< 0.5	1.4

Client Sample ID			STP27_0.4	QS01	QS02
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28228	S16-My28229	S16-My28230
Date Sampled			May 27, 2016	May 26, 2016	May 26, 2016
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	3.0
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	0.7
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	1.6
Pyrene	0.5	mg/kg	< 0.5	< 0.5	3.0
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	16.7
2-Fluorobiphenyl (surr.)	1	%	87	89	85
p-Terphenyl-d14 (surr.)	1	%	102	103	94
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
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	%	75	80	76
Tetrachloro-m-xylene (surr.)	1	%	103	122	110
Polychlorinated Biphenyls					
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1
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	%	75	80	76
Tetrachloro-m-xylene (surr.)	1	%	103	122	110
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	120
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100

Client Sample ID			STP27_0.4	QS01	QS02
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-My28228	S16-My28229	S16-My28230
Date Sampled			May 27, 2016	May 26, 2016	May 26, 2016
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic	2	mg/kg	7.7	6.4	6.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	8.6	12
Copper	5	mg/kg	17	7.1	42
Lead	5	mg/kg	29	6.4	220
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.40
Nickel	5	mg/kg	5.3	< 5	6.1
Zinc	5	mg/kg	61	7.1	320
% Moisture	1	%	14	16	11

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 31, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 30, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 30, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX	Sydney	May 30, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 31, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	May 31, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls	Sydney	May 31, 2016	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Metals M8	Sydney	May 30, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	May 28, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 20794

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Order No.:
Report #: 502310
Phone: 02 8245 0300
Fax:

Received: May 27, 2016 3:20 PM
Due: Jun 3, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Project Name: RIVERSTONE PARADE
Project ID: 50648

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	STP01_0.3	May 26, 2016		Soil	S16-My28192	X	X	X	X	X	X	X	X
2	STP02_1.0	May 26, 2016		Soil	S16-My28193	X				X		X	
3	STP03_1.0	May 26, 2016		Soil	S16-My28194	X				X		X	
4	STP04_1.0	May 26, 2016		Soil	S16-My28195	X	X			X	X	X	X
5	STP05_1.0	May 26, 2016		Soil	S16-My28196	X				X		X	
6	STP06_1.0	May 26, 2016		Soil	S16-My28197	X	X	X	X	X	X	X	X
7	STP06_2.0	May 26, 2016		Soil	S16-My28198	X	X			X	X	X	X
8	STP07_1.5	May 26, 2016		Soil	S16-My28199	X	X			X	X	X	X
9	STP08_1.0	May 26, 2016		Soil	S16-My28200	X				X		X	
10	STP08_2.0	May 26, 2016		Soil	S16-My28201	X	X	X	X	X	X	X	X

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Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
11	STP09_1.0	May 26, 2016		Soil	S16-My28202	X				X		X	
12	STP09_1.5	May 26, 2016		Soil	S16-My28203	X	X			X	X	X	X
13	STP10_1.0	May 26, 2016		Soil	S16-My28204	X				X		X	
14	STP11_1.0	May 26, 2016		Soil	S16-My28205	X	X	X	X	X	X	X	X
15	STP12_2.0	May 26, 2016		Soil	S16-My28206	X				X		X	
16	STP12_3.0	May 26, 2016		Soil	S16-My28207	X	X	X	X	X	X	X	X
17	STP13_1.0	May 26, 2016		Soil	S16-My28208	X				X		X	
18	STP13_2.0	May 26, 2016		Soil	S16-My28209	X	X			X	X	X	X
19	STP14_1.5	May 26, 2016		Soil	S16-My28210	X				X		X	
20	STP14_2.5	May 26, 2016		Soil	S16-My28211	X				X		X	
21	STP15_1.0	May 26, 2016		Soil	S16-My28212	X	X			X	X	X	X

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Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
22	STP16_1.0	May 26, 2016		Soil	S16-My28213	X				X		X	
23	STP17_1.0	May 26, 2016		Soil	S16-My28214	X	X			X	X	X	X
24	STP17_2.0	May 26, 2016		Soil	S16-My28215	X				X		X	
25	STP18_1.0	May 26, 2016		Soil	S16-My28216	X				X		X	
26	STP18_1.5	May 26, 2016		Soil	S16-My28217	X	X			X	X	X	X
27	STP19_1.0	May 26, 2016		Soil	S16-My28218	X	X	X	X	X	X	X	X
28	STP20_0.8	May 26, 2016		Soil	S16-My28219	X				X		X	
29	STP21_1.0	May 26, 2016		Soil	S16-My28220	X	X	X	X	X	X	X	X
30	STP21_2.0	May 26, 2016		Soil	S16-My28221	X				X		X	
31	STP22_1.0	May 26, 2016		Soil	S16-My28222	X				X		X	
32	STP22_1.5	May 26, 2016		Soil	S16-My28223	X	X	X	X	X	X	X	X

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Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
33	STP23_0.6	May 27, 2016		Soil	S16-My28224	X	X			X	X	X	X
34	STP24_0.6	May 27, 2016		Soil	S16-My28225	X				X		X	
35	STP25_0.6	May 27, 2016		Soil	S16-My28226	X	X			X	X	X	X
36	STP26_1.0	May 27, 2016		Soil	S16-My28227	X				X		X	
37	STP27_0.4	May 27, 2016		Soil	S16-My28228	X	X	X	X	X	X	X	X
38	QS01	May 26, 2016		Soil	S16-My28229	X	X	X	X	X	X	X	X
39	QS02	May 26, 2016		Soil	S16-My28230	X	X	X	X	X	X	X	X
40	TRIPS	May 24, 2016		Water	S16-My28231						X		
41	TRIPB	May 24, 2016		Water	S16-My28232						X		
Test Counts						39	21	11	11	39	23	39	21

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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 & PFASs 20-130%

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	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							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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							
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	%	87			70-130	Pass	
TRH C10-C14	%	101			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	92			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total	%	93			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	87			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	91			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	112			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	109			70-130	Pass	
Benzo(g.h.i)perylene	%	117			70-130	Pass	
Benzo(k)fluoranthene	%	100			70-130	Pass	
Chrysene	%	110			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	103			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	117			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	111			70-130	Pass	
Pyrene	%	109			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	119			70-130	Pass	
4.4'-DDD	%	125			70-130	Pass	
4.4'-DDE	%	119			70-130	Pass	
4.4'-DDT	%	118			70-130	Pass	
a-BHC	%	111			70-130	Pass	
Aldrin	%	114			70-130	Pass	
b-BHC	%	104			70-130	Pass	
d-BHC	%	121			70-130	Pass	
Dieldrin	%	118			70-130	Pass	
Endosulfan I	%	118			70-130	Pass	
Endosulfan II	%	122			70-130	Pass	
Endosulfan sulphate	%	126			70-130	Pass	
Endrin	%	115			70-130	Pass	
Endrin aldehyde	%	129			70-130	Pass	
Endrin ketone	%	118			70-130	Pass	
g-BHC (Lindane)	%	110			70-130	Pass	
Heptachlor	%	115			70-130	Pass	
Heptachlor epoxide	%	116			70-130	Pass	
Hexachlorobenzene	%	100			70-130	Pass	
Methoxychlor	%	112			70-130	Pass	
Toxaphene	%	88			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	101			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			70-130	Pass	
Cadmium	%	96			70-130	Pass	
Chromium	%	94			70-130	Pass	
Copper	%	86			70-130	Pass	
Lead	%	90			70-130	Pass	
Mercury	%	108			70-130	Pass	
Nickel	%	94			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									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S16-My28241	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-My28197	CP	%	125			70-130	Pass	
4.4'-DDD	S16-My28197	CP	%	130			70-130	Pass	
4.4'-DDE	S16-My28197	CP	%	125			70-130	Pass	
4.4'-DDT	S16-My28197	CP	%	127			70-130	Pass	
a-BHC	S16-My28197	CP	%	113			70-130	Pass	
Aldrin	S16-My28197	CP	%	119			70-130	Pass	
b-BHC	S16-My28197	CP	%	108			70-130	Pass	
d-BHC	S16-My28197	CP	%	125			70-130	Pass	
Dieldrin	S16-My28197	CP	%	124			70-130	Pass	
Endosulfan I	S16-My28197	CP	%	125			70-130	Pass	
Endosulfan II	S16-My28197	CP	%	125			70-130	Pass	
Endosulfan sulphate	S16-My28197	CP	%	126			70-130	Pass	
Endrin	S16-My28197	CP	%	115			70-130	Pass	
Endrin aldehyde	S16-My28197	CP	%	126			70-130	Pass	
Endrin ketone	S16-My28197	CP	%	123			70-130	Pass	
g-BHC (Lindane)	S16-My28197	CP	%	112			70-130	Pass	
Heptachlor	S16-My28197	CP	%	121			70-130	Pass	
Heptachlor epoxide	S16-My28197	CP	%	121			70-130	Pass	
Hexachlorobenzene	S16-My28197	CP	%	101			70-130	Pass	
Methoxychlor	S16-My28197	CP	%	117			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-My28197	CP	%	102			70-130	Pass	
Cadmium	S16-My28197	CP	%	100			70-130	Pass	
Chromium	S16-My28197	CP	%	109			70-130	Pass	
Copper	S16-My28197	CP	%	94			70-130	Pass	
Lead	S16-My28197	CP	%	106			70-130	Pass	
Mercury	S16-My28197	CP	%	110			70-130	Pass	
Nickel	S16-My28197	CP	%	99			70-130	Pass	
Zinc	S16-My28197	CP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-My28198	CP	%	71			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My28198	CP	%	82			70-130	Pass	
Toluene	S16-My28198	CP	%	83			70-130	Pass	
Ethylbenzene	S16-My28198	CP	%	83			70-130	Pass	
m&p-Xylenes	S16-My28198	CP	%	84			70-130	Pass	
o-Xylene	S16-My28198	CP	%	84			70-130	Pass	
Xylenes - Total	S16-My28198	CP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-My28198	CP	%	78			70-130	Pass	
TRH C6-C10	S16-My28198	CP	%	78			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-My28205	CP	%	76			70-130	Pass	
TRH C10-C14	S16-My28205	CP	%	117			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My28205	CP	%	80			70-130	Pass	
Toluene	S16-My28205	CP	%	81			70-130	Pass	
Ethylbenzene	S16-My28205	CP	%	81			70-130	Pass	
m&p-Xylenes	S16-My28205	CP	%	83			70-130	Pass	
o-Xylene	S16-My28205	CP	%	82			70-130	Pass	
Xylenes - Total	S16-My28205	CP	%	82			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-My28205	CP	%	76			70-130	Pass	
TRH C6-C10	S16-My28205	CP	%	81			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-My28205	CP	%	94			70-130	Pass	
Acenaphthylene	S16-My28205	CP	%	89			70-130	Pass	
Anthracene	S16-My28205	CP	%	96			70-130	Pass	
Benz(a)anthracene	S16-My28205	CP	%	108			70-130	Pass	
Benzo(a)pyrene	S16-My28205	CP	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	S16-My28205	CP	%	78			70-130	Pass	
Benzo(g.h.i)perylene	S16-My28205	CP	%	109			70-130	Pass	
Benzo(k)fluoranthene	S16-My28205	CP	%	100			70-130	Pass	
Chrysene	S16-My28205	CP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	S16-My28205	CP	%	96			70-130	Pass	
Fluoranthene	S16-My28205	CP	%	99			70-130	Pass	
Fluorene	S16-My28205	CP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-My28205	CP	%	103			70-130	Pass	
Naphthalene	S16-My28205	CP	%	97			70-130	Pass	
Phenanthrene	S16-My28205	CP	%	107			70-130	Pass	
Pyrene	S16-My28205	CP	%	108			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-My28205	CP	%	114			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-My28207	CP	%	94			70-130	Pass	
Cadmium	S16-My28207	CP	%	103			70-130	Pass	
Chromium	S16-My28207	CP	%	104			70-130	Pass	
Copper	S16-My28207	CP	%	91			70-130	Pass	
Mercury	S16-My28207	CP	%	116			70-130	Pass	
Nickel	S16-My28207	CP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-My28217	CP	%	73			70-130	Pass	
Cadmium	S16-My28217	CP	%	113			70-130	Pass	
Chromium	S16-My28217	CP	%	79			70-130	Pass	
Copper	S16-My28217	CP	%	102			70-130	Pass	
Lead	S16-My28217	CP	%	107			70-130	Pass	
Mercury	S16-My28217	CP	%	112			70-130	Pass	
Nickel	S16-My28217	CP	%	96			70-130	Pass	
Zinc	S16-My28217	CP	%	82			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-My28218	CP	%	80			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My28218	CP	%	87			70-130	Pass	
Toluene	S16-My28218	CP	%	89			70-130	Pass	
Ethylbenzene	S16-My28218	CP	%	90			70-130	Pass	
m&p-Xylenes	S16-My28218	CP	%	91			70-130	Pass	
o-Xylene	S16-My28218	CP	%	91			70-130	Pass	
Xylenes - Total	S16-My28218	CP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-My28218	CP	%	87			70-130	Pass	
TRH C6-C10	S16-My28218	CP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-My28226	CP	%	74			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My28226	CP	%	85			70-130	Pass	
Toluene	S16-My28226	CP	%	86			70-130	Pass	
Ethylbenzene	S16-My28226	CP	%	86			70-130	Pass	
m&p-Xylenes	S16-My28226	CP	%	86			70-130	Pass	
o-Xylene	S16-My28226	CP	%	87			70-130	Pass	
Xylenes - Total	S16-My28226	CP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-My28226	CP	%	88			70-130	Pass	
TRH C6-C10	S16-My28226	CP	%	80			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-My28226	CP	%	91			70-130	Pass	
Acenaphthylene	S16-My28226	CP	%	87			70-130	Pass	
Anthracene	S16-My28226	CP	%	98			70-130	Pass	
Benz(a)anthracene	S16-My28226	CP	%	112			70-130	Pass	
Benzo(a)pyrene	S16-My28226	CP	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	S16-My28226	CP	%	120			70-130	Pass	
Benzo(g.h.i)perylene	S16-My28226	CP	%	109			70-130	Pass	
Benzo(k)fluoranthene	S16-My28226	CP	%	89			70-130	Pass	
Chrysene	S16-My28226	CP	%	109			70-130	Pass	
Dibenz(a.h)anthracene	S16-My28226	CP	%	97			70-130	Pass	
Fluoranthene	S16-My28226	CP	%	102			70-130	Pass	
Fluorene	S16-My28226	CP	%	90			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-My28226	CP	%	103			70-130	Pass	
Naphthalene	S16-My28226	CP	%	99			70-130	Pass	
Phenanthrene	S16-My28226	CP	%	108			70-130	Pass	
Pyrene	S16-My28226	CP	%	108			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-My28227	CP	%	96			70-130	Pass	
Cadmium	S16-My28227	CP	%	92			70-130	Pass	
Chromium	S16-My28227	CP	%	86			70-130	Pass	
Copper	S16-My28227	CP	%	88			70-130	Pass	
Lead	S16-My28227	CP	%	113			70-130	Pass	
Mercury	S16-My28227	CP	%	99			70-130	Pass	
Nickel	S16-My28227	CP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-My28192	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-My28192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-My28192	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-My28192	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S16-My28192	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S16-My28192	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My28192	CP	%	19	19	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My28196	CP	mg/kg	6.4	6.5	2.0	30%	Pass	
Cadmium	S16-My28196	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My28196	CP	mg/kg	12	12	3.0	30%	Pass	
Copper	S16-My28196	CP	mg/kg	19	21	7.0	30%	Pass	
Lead	S16-My28196	CP	mg/kg	19	21	9.0	30%	Pass	
Mercury	S16-My28196	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-My28196	CP	mg/kg	7.3	8.5	15	30%	Pass	
Zinc	S16-My28196	CP	mg/kg	47	59	23	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-My28197	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My28197	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-My28197	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-My28197	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-My28197	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
o-Xylene	S16-My28197	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-My28197	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-My28197	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-My28197	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My28202	CP	%	17	18	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-My28203	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-My28203	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-My28203	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-My28203	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My28203	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-My28203	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-My28203	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-My28203	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-My28203	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-My28203	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-My28203	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-My28203	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-My28203	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-My28203	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-My28203	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My28206	CP	mg/kg	6.6	6.6	<1	30%	Pass	
Cadmium	S16-My28206	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My28206	CP	mg/kg	15	11	26	30%	Pass	
Copper	S16-My28206	CP	mg/kg	75	63	17	30%	Pass	
Lead	S16-My28206	CP	mg/kg	260	290	11	30%	Pass	
Mercury	S16-My28206	CP	mg/kg	0.30	0.42	33	30%	Fail	Q15
Nickel	S16-My28206	CP	mg/kg	10	7.2	37	30%	Fail	Q15
Zinc	S16-My28206	CP	mg/kg	210	170	19	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My28212	CP	%	15	18	19	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My28216	CP	mg/kg	6.1	5.8	5.0	30%	Pass	
Cadmium	S16-My28216	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My28216	CP	mg/kg	12	11	8.0	30%	Pass	
Copper	S16-My28216	CP	mg/kg	14	16	10	30%	Pass	
Lead	S16-My28216	CP	mg/kg	17	21	18	30%	Pass	
Mercury	S16-My28216	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-My28216	CP	mg/kg	6.7	6.1	10	30%	Pass	
Zinc	S16-My28216	CP	mg/kg	39	42	7.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-My28217	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My28217	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-My28217	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-My28217	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-My28217	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-My28217	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-My28217	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-My28217	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-My28217	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-My28222	CP	%	13	11	18	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-My28224	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My28224	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-My28224	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-My28224	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-My28224	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-My28224	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-My28224	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-My28224	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-My28224	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-My28226	CP	mg/kg	6.7	5.6	18	30%	Pass	
Cadmium	S16-My28226	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-My28226	CP	mg/kg	13	10	21	30%	Pass	
Copper	S16-My28226	CP	mg/kg	24	22	9.0	30%	Pass	
Lead	S16-My28226	CP	mg/kg	21	19	10	30%	Pass	
Mercury	S16-My28226	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-My28226	CP	mg/kg	9.5	7.7	21	30%	Pass	
Zinc	S16-My28226	CP	mg/kg	55	50	9.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-My28230	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-My28230	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-My28230	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-My28230	CP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S16-My28230	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S16-My28230	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S16-My28230	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S16-My28230	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S16-My28230	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S16-My28230	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S16-My28230	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
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

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

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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NSW ICAC EXHIBIT

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: **Chris Bielby**

Report **502310-W**
Project name RIVERSTONE PARADE
Project ID 50648
Received Date May 27, 2016

Client Sample ID			**TRIPS**	**TRIPB**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S16-My28231**	**S16-My28232**
Date Sampled			**May 24, 2016**	**May 24, 2016**
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.001	mg/L	80%	< 0.001
Toluene	0.001	mg/L	81%	< 0.001
Ethylbenzene	0.001	mg/L	76%	< 0.001
m&p-Xylenes	0.002	mg/L	77%	< 0.002
o-Xylene	0.001	mg/L	79%	< 0.001
Xylenes - Total	0.003	mg/L	78%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	102	90

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
BTEX	Sydney	May 28, 2016	14 Day

- Method: TRH C6-C40 - LTM-ORG-2010

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Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

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

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE PARADE
Project ID: 50648

Order No.:
Report #: 502310
Phone: 02 8245 0300
Fax:

Received: May 27, 2016 3:20 PM
Due: Jun 3, 2016
Priority: 5 Day
Contact Name: Chris Bielby

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	Moisture Set	Total Recoverable Hydrocarbons
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													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	STP01_0.3	May 26, 2016		Soil	S16-My28192	X	X	X	X	X	X	X	X
2	STP02_1.0	May 26, 2016		Soil	S16-My28193	X				X		X	
3	STP03_1.0	May 26, 2016		Soil	S16-My28194	X				X		X	
4	STP04_1.0	May 26, 2016		Soil	S16-My28195	X	X			X	X	X	X
5	STP05_1.0	May 26, 2016		Soil	S16-My28196	X				X		X	
6	STP06_1.0	May 26, 2016		Soil	S16-My28197	X	X	X	X	X	X	X	X
7	STP06_2.0	May 26, 2016		Soil	S16-My28198	X	X			X	X	X	X
8	STP07_1.5	May 26, 2016		Soil	S16-My28199	X	X			X	X	X	X
9	STP08_1.0	May 26, 2016		Soil	S16-My28200	X				X		X	
10	STP08_2.0	May 26, 2016		Soil	S16-My28201	X	X	X	X	X	X	X	X

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

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Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
11	STP09_1.0	May 26, 2016		Soil	S16-My28202	X				X		X	
12	STP09_1.5	May 26, 2016		Soil	S16-My28203	X	X			X	X	X	X
13	STP10_1.0	May 26, 2016		Soil	S16-My28204	X				X		X	
14	STP11_1.0	May 26, 2016		Soil	S16-My28205	X	X	X	X	X	X	X	X
15	STP12_2.0	May 26, 2016		Soil	S16-My28206	X				X		X	
16	STP12_3.0	May 26, 2016		Soil	S16-My28207	X	X	X	X	X	X	X	X
17	STP13_1.0	May 26, 2016		Soil	S16-My28208	X				X		X	
18	STP13_2.0	May 26, 2016		Soil	S16-My28209	X	X			X	X	X	X
19	STP14_1.5	May 26, 2016		Soil	S16-My28210	X				X		X	
20	STP14_2.5	May 26, 2016		Soil	S16-My28211	X				X		X	
21	STP15_1.0	May 26, 2016		Soil	S16-My28212	X	X			X	X	X	X

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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													
22	STP16_1.0	May 26, 2016		Soil	S16-My28213	X				X		X	
23	STP17_1.0	May 26, 2016		Soil	S16-My28214	X	X			X	X	X	X
24	STP17_2.0	May 26, 2016		Soil	S16-My28215	X				X		X	
25	STP18_1.0	May 26, 2016		Soil	S16-My28216	X				X		X	
26	STP18_1.5	May 26, 2016		Soil	S16-My28217	X	X			X	X	X	X
27	STP19_1.0	May 26, 2016		Soil	S16-My28218	X	X	X	X	X	X	X	X
28	STP20_0.8	May 26, 2016		Soil	S16-My28219	X				X		X	
29	STP21_1.0	May 26, 2016		Soil	S16-My28220	X	X	X	X	X	X	X	X
30	STP21_2.0	May 26, 2016		Soil	S16-My28221	X				X		X	
31	STP22_1.0	May 26, 2016		Soil	S16-My28222	X				X		X	
32	STP22_1.5	May 26, 2016		Soil	S16-My28223	X	X	X	X	X	X	X	X

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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													
33	STP23_0.6	May 27, 2016		Soil	S16-My28224	X	X			X	X	X	X
34	STP24_0.6	May 27, 2016		Soil	S16-My28225	X				X		X	
35	STP25_0.6	May 27, 2016		Soil	S16-My28226	X	X			X	X	X	X
36	STP26_1.0	May 27, 2016		Soil	S16-My28227	X				X		X	
37	STP27_0.4	May 27, 2016		Soil	S16-My28228	X	X	X	X	X	X	X	X
38	QS01	May 26, 2016		Soil	S16-My28229	X	X	X	X	X	X	X	X
39	QS02	May 26, 2016		Soil	S16-My28230	X	X	X	X	X	X	X	X
40	TRIPS	May 24, 2016		Water	S16-My28231						X		
41	TRIPB	May 24, 2016		Water	S16-My28232						X		
Test Counts						39	21	11	11	39	23	39	21

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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 & PFASs 20-130%

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	101			70-130	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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.

NSW ICAC EXHIBIT

07712 1/2 eurofins

E15/0978/025/0005

JBS&G

CHAIN OF CUSTODY

PROJECT NO.: S0648
PROJECT NAME: Riverstone
DATE NEEDED BY: Standard TAT
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....@jbsg.com.au; (3) .....@jbsg.com.au

LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

S02876

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals*	Asbestos	TRH	BTEX	PAH	OCP	PCB	Hold	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	NEPM/WA	NOTES:
STP28_1.5	SOIL	1.6		Jar tray + ice		X	X	X	X	X	X	X				* Heavy Metals - B Heavy Metals
STP29_0.7						X	X									
3 STP30_0.8						X										
STP31_0.9						X	X	X	X	X						
STP32_2.0						X	X	X	X	X	X	X				
STP33_2.0						X	X	X	X	X						1 Asbestos = WA NEPC TOTAL
1 STP33_3.0													X			
STP34_1.5						X	X	X	X	X	X	X				
STP35_1.7						X	X									
STP36_1.0						X	X	X	X	X						
STP37_1.5						X	X	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				not these
STP38_1.5													X			
STP38_3.0						X	X	X	X	X	X	X				
STP39_0.2													X			
STP41_0.25						X	X									
STP42_1.7						X	X									
STP43_0.5						X	X									
STP44_1.0						X	X	X	X	X						
STP45_0.2						X	X	X	X	X	X	X				

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY	FOR RECEIVING LAB USE ONLY:
NAME: EH DATE: 1.6.16	CONSIGNMENT NOTE NO.	NAME: Sean DATE. 2/6 8:28	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF: EF/MGT	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 Forms013 – Chain of Custody - Generic

07713 2/2 eurofins

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone
DATE NEEDED BY: Standard
LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....@jbsg.com.au; (3) .....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals*	Asbestos	TRH	BTEX	PAHs	OCPs	PCBs	Hold	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
20 STP45 - 0.5	SOIL	1.6		Jar + bag + ice									X			* Heavy metals = 8 heavy metals
QS03	↓	↓		↓		X	X									
TS	Water	31.5		2xVC					X							
TB	↓	31.5		↓					X							
STP13 (frag)	Material	26.5		bag									X			Asbestos = 40mL NEPM 500mL
STP19 (frag)	↓	26.5		↓									X			
STP29 (frag)	↓	1.6		↓									X			
STP11 (frag)	↓	26.5											X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY
NAME: DATE: 1.6.16 OF: JBS&G	CONSIGNMENT NOTE NO TRANSPORT CO	NAME: Sean DATE: 2/6 8:28 OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE 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

IMSO Forms013 - Chain of Custody - Generic

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NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**JBS & G Australia (NSW & WA) P/L**
Contact name:	Ellen Howley
Project name:	RIVERSTONE
Project ID:	50648
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 2, 2016 8:28 AM
Eurofins | mgt reference:	**502876**

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 : 1 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Extra samples received, STP 33_1.0 and STP46_0.4| Missing samples STP33_2.0 and STP45_0.5.

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Ellen Howley - EHowley@jbsg.com.au.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Ellen Howley
Report	502876-AID
Project Name	RIVERSTONE
Project ID	50648
Received Date	Jun 02, 2016
Date Reported	Jun 09, 2016

Methodology:

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

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.

Project Name RIVERSTONE
Project ID 50648
Date Sampled Jun 01, 2016
Report 502876-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP28_1.5	16-Jn01896	Jun 01, 2016	Approximate Sample 630g Sample consisted of: Brown coarse grain sandy soil and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 1.2331g Total estimated asbestos content in ACM = 0.1850g* Total estimated asbestos concentration in ACM = 0.0294% w/w* Organic fibre detected.[M11]
STP29_0.7	16-Jn01897	Jun 01, 2016	Approximate Sample 1075g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP30_0.8	16-Jn01898	Jun 01, 2016	Approximate Sample 1006g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP31_0.9	16-Jn01899	Jun 01, 2016	Approximate Sample 870g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP32_2.0	16-Jn01900	Jun 01, 2016	Approximate Sample 980g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP33_2.0	16-Jn01901	Jun 01, 2016	Approximate Sample 831g Sample consisted of: Brown coarse grain sandy soil and rocks	FA: Chrysotile asbestos detected in bituminous material. Approximate raw weight of FA = 0.5525g Estimated asbestos content in FA = 0.1105g* Total estimated asbestos concentration in FA = 0.0133% w/w* Organic fibre detected.[M11]
STP34_1.5	16-Jn01903	Jun 01, 2016	Approximate Sample 799g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP35_1.7	16-Jn01904	Jun 01, 2016	Approximate Sample 847g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
STP36_1.0	16-Jn01905	Jun 01, 2016	Approximate Sample 930g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP37_1.5	16-Jn01906	Jun 01, 2016	Approximate Sample 660g Sample consisted of: Brown coarse grain sandy soil and rocks	ACM: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 9.5957g Total estimated asbestos content in ACM = 1.4394g* Total estimated asbestos concentration in ACM = 0.2181% w/w* Organic fibre detected.[M11]
STP38_3.0	16-Jn01908	Jun 01, 2016	Approximate Sample 641g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.[M11]
STP41_0.25	16-Jn01910	Jun 01, 2016	Approximate Sample 816g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP42_1.7	16-Jn01911	Jun 01, 2016	Approximate Sample 963g Sample consisted of: Brown coarse grain sandy soil and rocks	ACM: Chrysotile, amosite and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 3.5286g Total estimated asbestos content in ACM = 0.5293g* Total estimated asbestos concentration in ACM = 0.0550% w/w* Organic fibre detected.[M11]
STP43_0.5	16-Jn01912	Jun 01, 2016	Approximate Sample 1035g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP44_1.0	16-Jn01913	Jun 01, 2016	Approximate Sample 752g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
STP45_0.2	16-Jn01914	Jun 01, 2016	Approximate Sample 1016g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.[M11]
QS03	16-Jn01916	Jun 01, 2016	Approximate Sample 1012g Sample consisted of: Brown coarse grain sandy soil and rocks	FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.1742g Estimated asbestos content in FA = 0.0697g* Total estimated asbestos concentration in FA = 0.0069% w/w* Organic fibre detected.[M11]

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Jun 02, 2016	Indefinite

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Site # 1254 & 14271

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE
Project ID: 50648

Order No.:
Report #: 502876
Phone: 02 8245 0300
Fax:

Received: Jun 2, 2016 8:28 AM
Due: Jun 9, 2016
Priority: 5 Day
Contact Name: Ellen Howley

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	STP28_1.5	Jun 01, 2016		Soil	S16-Jn01896	X			X	X	X	X	X		X	X
2	STP29_0.7	Jun 01, 2016		Soil	S16-Jn01897	X						X			X	
3	STP30_0.8	Jun 01, 2016		Soil	S16-Jn01898	X			X			X	X		X	X
4	STP31_0.9	Jun 01, 2016		Soil	S16-Jn01899	X						X			X	
5	STP32_2.0	Jun 01, 2016		Soil	S16-Jn01900	X			X	X	X	X	X		X	X
6	STP33_2.0	Jun 01, 2016		Soil	S16-Jn01901	X			X			X	X		X	X
7	STP33_3.0	Jun 01, 2016		Soil	S16-Jn01902		X									
8	STP34_1.5	Jun 01, 2016		Soil	S16-Jn01903	X			X	X	X	X	X		X	X
9	STP35_1.7	Jun 01, 2016		Soil	S16-Jn01904	X						X			X	
10	STP36_1.0	Jun 01, 2016		Soil	S16-Jn01905	X			X			X	X		X	X

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Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
11	STP37_1.5	Jun 01, 2016		Soil	S16-Jn01906	X						X			X	
12	STP38_1.5	Jun 01, 2016		Soil	S16-Jn01907		X									
13	STP38_3.0	Jun 01, 2016		Soil	S16-Jn01908	X			X	X	X	X	X		X	X
14	STP39_0.2	Jun 01, 2016		Soil	S16-Jn01909		X									
15	STP41_0.25	Jun 01, 2016		Soil	S16-Jn01910	X						X			X	
16	STP42_1.7	Jun 01, 2016		Soil	S16-Jn01911	X						X			X	
17	STP43_0.5	Jun 01, 2016		Soil	S16-Jn01912	X						X			X	
18	STP44_1.0	Jun 01, 2016		Soil	S16-Jn01913	X			X			X	X		X	X
19	STP45_0.2	Jun 01, 2016		Soil	S16-Jn01914	X			X	X	X	X	X		X	X
20	STP46_0.4	Jun 01, 2016		Soil	S16-Jn01915		X									
21	QS03	Jun 01, 2016		Soil	S16-Jn01916	X						X			X	

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Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
22	TS	Jun 01, 2016		Water	S16-Jn01917									X		
23	TB	Jun 01, 2016		Water	S16-Jn01918									X		
24	STP13 FRAG	May 26, 2016		Building Materials	S16-Jn01919			X								
25	STP19 FRAG	May 26, 2016		Building Materials	S16-Jn01920			X								
26	STP29 FRAG	Jun 01, 2016		Building Materials	S16-Jn01921			X								
27	STP11 FRAG	May 26, 2016		Building Materials	S16-Jn01922			X								
Test Counts						17	8	8	9	5	5	17	11	11	17	9

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

Units

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

Terms

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

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable
M11	NATA accreditation does not cover the performance of this service.

Authorised by:

Rhys Thomas Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service
Uncertainty data is available on request

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Certificate of Analysis

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

NATA Accredited
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Attention: **Ellen Howley**

Report **502876-S**
Project name RIVERSTONE
Project ID 50648
Received Date Jun 02, 2016

Client Sample ID			**STP28_1.5**	**STP29_0.7**	**STP30_0.8**	**STP31_0.9**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Jn01896**	**S16-Jn01897**	**S16-Jn01898**	**S16-Jn01899**
Date Sampled			**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	76	-	< 20	-
TRH C15-C28	50	mg/kg	250	-	< 50	-
TRH C29-C36	50	mg/kg	130	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	456	-	< 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	%	61	-	127	-
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 less Naphthalene (F2)[N01]	50	mg/kg	120	-	< 50	-
Polycyclic Aromatic Hydrocarbons						
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	-
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	-

Client Sample ID			STP28_1.5	STP29_0.7	STP30_0.8	STP31_0.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01896	S16-Jn01897	S16-Jn01898	S16-Jn01899
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	-
2-Fluorobiphenyl (surr.)	1	%	89	-	86	-
p-Terphenyl-d14 (surr.)	1	%	87	-	87	-
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	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Dibutylchlorendate (surr.)	1	%	94	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	98	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-	-
Total PCB*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	94	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	98	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	120	-	< 50	-
TRH >C16-C34	100	mg/kg	340	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-

Client Sample ID			STP28_1.5	STP29_0.7	STP30_0.8	STP31_0.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01896	S16-Jn01897	S16-Jn01898	S16-Jn01899
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	5.6	2.9	2.0	4.8
Cadmium	0.4	mg/kg	0.5	< 0.4	0.7	< 0.4
Chromium	5	mg/kg	9.7	12	18	11
Copper	5	mg/kg	36	36	11	18
Lead	5	mg/kg	60	120	10	25
Mercury	0.1	mg/kg	< 0.1	0.3	< 0.1	< 0.1
Nickel	5	mg/kg	6.9	5.7	< 5	< 5
Zinc	5	mg/kg	240	120	22	140
% Moisture	1	%	14	13	9.2	20

Client Sample ID			STP32_2.0	STP33_2.0	STP34_1.5	STP35_1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01900	S16-Jn01901	S16-Jn01903	S16-Jn01904
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
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	83	< 20	-
TRH C15-C28	50	mg/kg	< 50	1600	< 50	-
TRH C29-C36	50	mg/kg	< 50	610	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	2293	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	52	77	67	-
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	120	< 50	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 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	< 0.5	-
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	0.8	< 0.5	-

Client Sample ID			STP32_2.0	STP33_2.0	STP34_1.5	STP35_1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01900	S16-Jn01901	S16-Jn01903	S16-Jn01904
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
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	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	0.8	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	92	79	87	-
p-Terphenyl-d14 (surr.)	1	%	99	86	90	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	77	-	72	-
Tetrachloro-m-xylene (surr.)	1	%	91	-	93	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	77	-	72	-
Tetrachloro-m-xylene (surr.)	1	%	91	-	93	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	120	< 50	-
TRH >C16-C34	100	mg/kg	< 100	2100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	300	< 100	-

Client Sample ID			STP32_2.0	STP33_2.0	STP34_1.5	STP35_1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01900	S16-Jn01901	S16-Jn01903	S16-Jn01904
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	9.0	< 2	< 2	3.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.5
Chromium	5	mg/kg	20	12	26	11
Copper	5	mg/kg	18	92	8.7	21
Lead	5	mg/kg	21	120	15	140
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	0.1
Nickel	5	mg/kg	< 5	6.4	< 5	5.3
Zinc	5	mg/kg	63	160	18	160
% Moisture	1	%	16	18	12	11

Client Sample ID			STP36_1.0	STP37_1.5	STP38_3.0	STP41_0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01905	S16-Jn01906	S16-Jn01908	S16-Jn01910
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
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	-	170	-
TRH C29-C36	50	mg/kg	< 50	-	72	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	242	-
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	%	64	-	57	-
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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
Polycyclic Aromatic Hydrocarbons						
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	-	0.9	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
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	-

Client Sample ID			STP36_1.0	STP37_1.5	STP38_3.0	STP41_0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01905	S16-Jn01906	S16-Jn01908	S16-Jn01910
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	0.9	-
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	-	0.6	-
Pyrene	0.5	mg/kg	< 0.5	-	0.9	-
Total PAH*	0.5	mg/kg	< 0.5	-	2.9	-
2-Fluorobiphenyl (surr.)	1	%	90	-	88	-
p-Terphenyl-d14 (surr.)	1	%	94	-	83	-
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	-	-	0.08	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	0.07	-
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	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Dibutylchlorendate (surr.)	1	%	-	-	83	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	96	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	83	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	96	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	210	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-

Client Sample ID			STP36_1.0	STP37_1.5	STP38_3.0	STP41_0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01905	S16-Jn01906	S16-Jn01908	S16-Jn01910
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	6.7	19	2.4	2.0
Cadmium	0.4	mg/kg	0.4	< 0.4	1.0	0.4
Chromium	5	mg/kg	14	22	12	8.3
Copper	5	mg/kg	18	14	44	31
Lead	5	mg/kg	36	16	170	140
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.1	0.1
Nickel	5	mg/kg	< 5	< 5	5.5	< 5
Zinc	5	mg/kg	74	28	200	140
% Moisture	1	%	14	17	23	15

Client Sample ID			STP42_1.7	STP43_0.5	STP44_1.0	STP45_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01911	S16-Jn01912	S16-Jn01913	S16-Jn01914
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
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	%	-	-	60	55
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 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
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
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

Client Sample ID			STP42_1.7	STP43_0.5	STP44_1.0	STP45_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn01911	S16-Jn01912	S16-Jn01913	S16-Jn01914
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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
2-Fluorobiphenyl (surr.)	1	%	-	-	87	86
p-Terphenyl-d14 (surr.)	1	%	-	-	87	86
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	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	76
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	88
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	76
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	88
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100

Client Sample ID			STP42_1.7	STP43_0.5	STP44_1.0	STP45_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Jn01911**	**S16-Jn01912**	**S16-Jn01913**	**S16-Jn01914**
Date Sampled			**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	6.6	5.2	2.8	5.6
Cadmium	0.4	mg/kg	< 0.4	0.4	< 0.4	< 0.4
Chromium	5	mg/kg	40	14	7.8	5.2
Copper	5	mg/kg	12	18	17	< 5
Lead	5	mg/kg	110	59	12	10
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	8.8	6.3	< 5
Zinc	5	mg/kg	58	54	39	17
% Moisture	1	%	10	8.6	17	8.7

Client Sample ID			QS03
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S16-Jn01916**
Date Sampled			**Jun 01, 2016**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	7.8
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	14
Copper	5	mg/kg	27
Lead	5	mg/kg	190
Mercury	0.1	mg/kg	0.2
Nickel	5	mg/kg	7.4
Zinc	5	mg/kg	230
% Moisture	1	%	11

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	Melbourne	Jun 03, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 03, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 03, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX	Melbourne	Jun 03, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 03, 2016	14 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
Organochlorine Pesticides	Melbourne	Jun 03, 2016	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Polychlorinated Biphenyls	Melbourne	Jun 03, 2016	28 Day
- Method: USEPA 8082 Polychlorinated Biphenyls			
Metals M8	Melbourne	Jun 03, 2016	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Jun 02, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 20794

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Order No.:
Report #: 502876
Phone: 02 8245 0300
Fax:

Received: Jun 2, 2016 8:28 AM
Due: Jun 9, 2016
Priority: 5 Day
Contact Name: Ellen Howley

Project Name: RIVERSTONE
Project ID: 50648

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	STP28_1.5	Jun 01, 2016		Soil	S16-Jn01896	X			X	X	X	X	X		X	X
2	STP29_0.7	Jun 01, 2016		Soil	S16-Jn01897	X						X			X	
3	STP30_0.8	Jun 01, 2016		Soil	S16-Jn01898	X			X			X	X		X	X
4	STP31_0.9	Jun 01, 2016		Soil	S16-Jn01899	X						X			X	
5	STP32_2.0	Jun 01, 2016		Soil	S16-Jn01900	X			X	X	X	X	X		X	X
6	STP33_2.0	Jun 01, 2016		Soil	S16-Jn01901	X			X			X	X		X	X
7	STP33_3.0	Jun 01, 2016		Soil	S16-Jn01902		X									
8	STP34_1.5	Jun 01, 2016		Soil	S16-Jn01903	X			X	X	X	X	X		X	X
9	STP35_1.7	Jun 01, 2016		Soil	S16-Jn01904	X						X			X	
10	STP36_1.0	Jun 01, 2016		Soil	S16-Jn01905	X			X			X	X		X	X

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Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
11	STP37_1.5	Jun 01, 2016		Soil	S16-Jn01906	X						X			X	
12	STP38_1.5	Jun 01, 2016		Soil	S16-Jn01907		X									
13	STP38_3.0	Jun 01, 2016		Soil	S16-Jn01908	X			X	X	X	X	X		X	X
14	STP39_0.2	Jun 01, 2016		Soil	S16-Jn01909		X									
15	STP41_0.25	Jun 01, 2016		Soil	S16-Jn01910	X						X			X	
16	STP42_1.7	Jun 01, 2016		Soil	S16-Jn01911	X						X			X	
17	STP43_0.5	Jun 01, 2016		Soil	S16-Jn01912	X						X			X	
18	STP44_1.0	Jun 01, 2016		Soil	S16-Jn01913	X			X			X	X		X	X
19	STP45_0.2	Jun 01, 2016		Soil	S16-Jn01914	X			X	X	X	X	X		X	X
20	STP46_0.4	Jun 01, 2016		Soil	S16-Jn01915		X									
21	QS03	Jun 01, 2016		Soil	S16-Jn01916	X						X			X	

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Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
22	TS	Jun 01, 2016		Water	S16-Jn01917									X		
23	TB	Jun 01, 2016		Water	S16-Jn01918									X		
24	STP13 FRAG	May 26, 2016		Building Materials	S16-Jn01919			X								
25	STP19 FRAG	May 26, 2016		Building Materials	S16-Jn01920			X								
26	STP29 FRAG	Jun 01, 2016		Building Materials	S16-Jn01921			X								
27	STP11 FRAG	May 26, 2016		Building Materials	S16-Jn01922			X								
Test Counts						17	8	8	9	5	5	17	11	11	17	9

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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 & PFASs 20-130%

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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							
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	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	102			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	80			70-130	Pass	
Toluene	%	79			70-130	Pass	
Ethylbenzene	%	80			70-130	Pass	
m&p-Xylenes	%	79			70-130	Pass	
Xylenes - Total	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	88			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	81			70-130	Pass	
Acenaphthylene	%	85			70-130	Pass	
Anthracene	%	84			70-130	Pass	
Benz(a)anthracene	%	86			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene			%	88			70-130	Pass	
Benzo(g.h.i)perylene			%	101			70-130	Pass	
Benzo(k)fluoranthene			%	74			70-130	Pass	
Chrysene			%	79			70-130	Pass	
Dibenz(a.h)anthracene			%	106			70-130	Pass	
Fluoranthene			%	71			70-130	Pass	
Fluorene			%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	105			70-130	Pass	
Naphthalene			%	82			70-130	Pass	
Phenanthrene			%	91			70-130	Pass	
Pyrene			%	71			70-130	Pass	
LCS - % Recovery									
Organochlorine Pesticides									
4.4'-DDD			%	87			70-130	Pass	
4.4'-DDE			%	88			70-130	Pass	
4.4'-DDT			%	87			70-130	Pass	
a-BHC			%	96			70-130	Pass	
Aldrin			%	93			70-130	Pass	
b-BHC			%	117			70-130	Pass	
d-BHC			%	90			70-130	Pass	
Dieldrin			%	90			70-130	Pass	
Endosulfan I			%	90			70-130	Pass	
Endosulfan II			%	85			70-130	Pass	
Endosulfan sulphate			%	87			70-130	Pass	
Endrin			%	87			70-130	Pass	
Endrin aldehyde			%	85			70-130	Pass	
Endrin ketone			%	90			70-130	Pass	
g-BHC (Lindane)			%	94			70-130	Pass	
Heptachlor			%	92			70-130	Pass	
Heptachlor epoxide			%	113			70-130	Pass	
Hexachlorobenzene			%	94			70-130	Pass	
Methoxychlor			%	92			70-130	Pass	
LCS - % Recovery									
Polychlorinated Biphenyls									
Aroclor-1260			%	86			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16			%	101			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	92			80-120	Pass	
Cadmium			%	93			80-120	Pass	
Chromium			%	96			80-120	Pass	
Copper			%	99			80-120	Pass	
Lead			%	95			80-120	Pass	
Mercury			%	85			75-125	Pass	
Nickel			%	93			80-120	Pass	
Zinc			%	96			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	M16-Jn06578	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	M16-My30232	NCP	%	91			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S16-Jn01900	CP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Jn01900	CP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Jn01903	CP	%	81			75-125	Pass	
Cadmium	S16-Jn01903	CP	%	83			75-125	Pass	
Copper	S16-Jn01903	CP	%	111			75-125	Pass	
Nickel	S16-Jn01903	CP	%	80			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-Jn01905	CP	%	86			70-130	Pass	
Acenaphthylene	S16-Jn01905	CP	%	91			70-130	Pass	
Anthracene	S16-Jn01905	CP	%	90			70-130	Pass	
Benz(a)anthracene	S16-Jn01905	CP	%	98			70-130	Pass	
Benzo(a)pyrene	S16-Jn01905	CP	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	S16-Jn01905	CP	%	93			70-130	Pass	
Benzo(g.h.i)perylene	S16-Jn01905	CP	%	106			70-130	Pass	
Benzo(k)fluoranthene	S16-Jn01905	CP	%	74			70-130	Pass	
Chrysene	S16-Jn01905	CP	%	87			70-130	Pass	
Dibenz(a.h)anthracene	S16-Jn01905	CP	%	118			70-130	Pass	
Fluoranthene	S16-Jn01905	CP	%	74			70-130	Pass	
Fluorene	S16-Jn01905	CP	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-Jn01905	CP	%	115			70-130	Pass	
Naphthalene	S16-Jn01905	CP	%	85			70-130	Pass	
Phenanthrene	S16-Jn01905	CP	%	82			70-130	Pass	
Pyrene	S16-Jn01905	CP	%	74			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Jn01914	CP	%	83			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Jn01914	CP	%	76			70-130	Pass	
Toluene	S16-Jn01914	CP	%	74			70-130	Pass	
Ethylbenzene	S16-Jn01914	CP	%	74			70-130	Pass	
m&p-Xylenes	S16-Jn01914	CP	%	75			70-130	Pass	
o-Xylene	S16-Jn01914	CP	%	77			70-130	Pass	
Xylenes - Total	S16-Jn01914	CP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Jn01914	CP	%	83			70-130	Pass	
TRH C6-C10	S16-Jn01914	CP	%	75			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S16-Jn01914	CP	%	95			70-130	Pass	
4.4'-DDE	S16-Jn01914	CP	%	102			70-130	Pass	
4.4'-DDT	S16-Jn01914	CP	%	94			70-130	Pass	
a-BHC	S16-Jn01914	CP	%	114			70-130	Pass	
Aldrin	S16-Jn01914	CP	%	111			70-130	Pass	
b-BHC	S16-Jn01914	CP	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
d-BHC	S16-Jn01914	CP	%	106			70-130	Pass	
Dieldrin	S16-Jn01914	CP	%	105			70-130	Pass	
Endosulfan I	S16-Jn01914	CP	%	104			70-130	Pass	
Endosulfan II	S16-Jn01914	CP	%	96			70-130	Pass	
Endosulfan sulphate	S16-Jn01914	CP	%	96			70-130	Pass	
Endrin	S16-Jn01914	CP	%	94			70-130	Pass	
Endrin aldehyde	S16-Jn01914	CP	%	95			70-130	Pass	
Endrin ketone	S16-Jn01914	CP	%	100			70-130	Pass	
g-BHC (Lindane)	S16-Jn01914	CP	%	110			70-130	Pass	
Heptachlor	S16-Jn01914	CP	%	109			70-130	Pass	
Heptachlor epoxide	S16-Jn01914	CP	%	116			70-130	Pass	
Hexachlorobenzene	S16-Jn01914	CP	%	110			70-130	Pass	
Methoxychlor	S16-Jn01914	CP	%	97			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Jn01916	CP	%	78			75-125	Pass	
Cadmium	S16-Jn01916	CP	%	85			75-125	Pass	
Chromium	S16-Jn01916	CP	%	80			75-125	Pass	
Copper	S16-Jn01916	CP	%	91			75-125	Pass	
Mercury	S16-Jn01916	CP	%	93			70-130	Pass	
Zinc	S16-Jn01916	CP	%	100			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S16-Jn01898	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Jn01898	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-Jn01898	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Jn01898	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-Jn01898	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-Jn01898	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Jn01901	CP	mg/kg	< 2	3.4	59	30%	Fail	Q15
Cadmium	S16-Jn01901	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Jn01901	CP	mg/kg	12	15	23	30%	Pass	
Copper	S16-Jn01901	CP	mg/kg	92	83	10	30%	Pass	
Lead	S16-Jn01901	CP	mg/kg	120	130	11	30%	Pass	
Nickel	S16-Jn01901	CP	mg/kg	6.4	7.6	18	30%	Pass	
Zinc	S16-Jn01901	CP	mg/kg	160	140	14	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Fluorene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-Jn01903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Jn01903	CP	mg/kg	< 2	12	160	30%	Fail	Q15
Cadmium	S16-Jn01903	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Jn01903	CP	mg/kg	26	26	<1	30%	Pass	
Copper	S16-Jn01903	CP	mg/kg	8.7	8.8	1.0	30%	Pass	
Lead	S16-Jn01903	CP	mg/kg	15	11	33	30%	Fail	Q15
Nickel	S16-Jn01903	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-Jn01903	CP	mg/kg	18	20	11	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Jn01903	CP	%	12	12	4.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-Jn01908	CP	mg/kg	0.08	0.12	34	30%	Fail	Q15
b-BHC	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-Jn01908	CP	mg/kg	0.07	0.07	3.0	30%	Pass	
Endosulfan I	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-Jn01908	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S16-Jn01908	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S16-Jn01908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Jn01913	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Jn01913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Jn01913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Jn01913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Jn01913	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Jn01913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Jn01913	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Jn01913	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Jn01913	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Cadmium	S16-Jn01914	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Jn01914	CP	mg/kg	5.2	5.6	8.0	30%	Pass	
Copper	S16-Jn01914	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S16-Jn01914	CP	mg/kg	10	7.5	29	30%	Pass	
Nickel	S16-Jn01914	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-Jn01914	CP	mg/kg	17	19	11	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Jn01916	CP	mg/kg	7.8	5.8	30	30%	Pass	
Cadmium	S16-Jn01916	CP	mg/kg	< 0.4	0.8	71	30%	Fail	Q15
Chromium	S16-Jn01916	CP	mg/kg	14	14	2.0	30%	Pass	
Copper	S16-Jn01916	CP	mg/kg	27	28	3.0	30%	Pass	
Lead	S16-Jn01916	CP	mg/kg	190	190	2.0	30%	Pass	
Mercury	S16-Jn01916	CP	mg/kg	0.2	0.2	7.0	30%	Pass	
Nickel	S16-Jn01916	CP	mg/kg	7.4	7.0	5.0	30%	Pass	
Zinc	S16-Jn01916	CP	mg/kg	230	220	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Jn01916	CP	%	11	11	1.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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 QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Mele Singh	Senior Analyst-Organic (VIC)
Rhys Thomas	Senior Analyst-Asbestos (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW & WA) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: **Ellen Howley**

Report **502876-W**
Project name RIVERSTONE
Project ID 50648
Received Date Jun 02, 2016

Client Sample ID			**TS**	**TB**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S16-Jn01917**	**S16-Jn01918**
Date Sampled			**Jun 01, 2016**	**Jun 01, 2016**
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.001	mg/L	96%	< 0.001
Toluene	0.001	mg/L	98%	< 0.001
Ethylbenzene	0.001	mg/L	99%	< 0.001
m&p-Xylenes	0.002	mg/L	100%	< 0.002
o-Xylene	0.001	mg/L	98%	< 0.001
Xylenes - Total	0.003	mg/L	99%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	103	102

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
BTEX	Sydney	Jun 02, 2016	14 Day

- Method: TRH C6-C40 - LTM-ORG-2010

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NATA # 1261 Site # 20794

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE
Project ID: 50648

Order No.:
Report #: 502876
Phone: 02 8245 0300
Fax:

Received: Jun 2, 2016 8:28 AM
Due: Jun 9, 2016
Priority: 5 Day
Contact Name: Ellen Howley

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	STP28_1.5	Jun 01, 2016		Soil	S16-Jn01896	X			X	X	X	X	X		X	X
2	STP29_0.7	Jun 01, 2016		Soil	S16-Jn01897	X						X			X	
3	STP30_0.8	Jun 01, 2016		Soil	S16-Jn01898	X			X			X	X		X	X
4	STP31_0.9	Jun 01, 2016		Soil	S16-Jn01899	X						X			X	
5	STP32_2.0	Jun 01, 2016		Soil	S16-Jn01900	X			X	X	X	X	X		X	X
6	STP33_2.0	Jun 01, 2016		Soil	S16-Jn01901	X			X			X	X		X	X
7	STP33_3.0	Jun 01, 2016		Soil	S16-Jn01902		X									
8	STP34_1.5	Jun 01, 2016		Soil	S16-Jn01903	X			X	X	X	X	X		X	X
9	STP35_1.7	Jun 01, 2016		Soil	S16-Jn01904	X						X			X	
10	STP36_1.0	Jun 01, 2016		Soil	S16-Jn01905	X			X			X	X		X	X

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

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

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

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

Company Name: JBS & G Australia (NSW & WA) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: RIVERSTONE
Project ID: 50648

Order No.:
Report #: 502876
Phone: 02 8245 0300
Fax:

Received: Jun 2, 2016 8:28 AM
Due: Jun 9, 2016
Priority: 5 Day
Contact Name: Ellen Howley

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
11	STP37_1.5	Jun 01, 2016		Soil	S16-Jn01906	X						X			X	
12	STP38_1.5	Jun 01, 2016		Soil	S16-Jn01907		X									
13	STP38_3.0	Jun 01, 2016		Soil	S16-Jn01908	X			X	X	X	X	X		X	X
14	STP39_0.2	Jun 01, 2016		Soil	S16-Jn01909		X									
15	STP41_0.25	Jun 01, 2016		Soil	S16-Jn01910	X						X			X	
16	STP42_1.7	Jun 01, 2016		Soil	S16-Jn01911	X						X			X	
17	STP43_0.5	Jun 01, 2016		Soil	S16-Jn01912	X						X			X	
18	STP44_1.0	Jun 01, 2016		Soil	S16-Jn01913	X			X			X	X		X	X
19	STP45_0.2	Jun 01, 2016		Soil	S16-Jn01914	X			X	X	X	X	X		X	X
20	STP46_0.4	Jun 01, 2016		Soil	S16-Jn01915		X									
21	QS03	Jun 01, 2016		Soil	S16-Jn01916	X						X			X	

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Sample Detail						Asbestos - WA guidelines	HOLD	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	BTEX	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217						X		X						X		X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory																
22	TS	Jun 01, 2016		Water	S16-Jn01917									X		
23	TB	Jun 01, 2016		Water	S16-Jn01918									X		
24	STP13 FRAG	May 26, 2016		Building Materials	S16-Jn01919			X								
25	STP19 FRAG	May 26, 2016		Building Materials	S16-Jn01920			X								
26	STP29 FRAG	Jun 01, 2016		Building Materials	S16-Jn01921			X								
27	STP11 FRAG	May 26, 2016		Building Materials	S16-Jn01922			X								
Test Counts						17	8	8	9	5	5	17	11	11	17	9

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
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 & PFASs 20-130%

QC Data General Comments

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

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
LCS - % Recovery									
BTEX									
Benzene			%	97			70-130	Pass	
Toluene			%	101			70-130	Pass	
Ethylbenzene			%	103			70-130	Pass	
m&p-Xylenes			%	105			70-130	Pass	
o-Xylene			%	101			70-130	Pass	
Xylenes - Total			%	104			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-My29819	NCP	%	99			70-130	Pass	
Toluene	S16-My29819	NCP	%	102			70-130	Pass	
Ethylbenzene	S16-My29819	NCP	%	105			70-130	Pass	
m&p-Xylenes	S16-My29819	NCP	%	106			70-130	Pass	
o-Xylene	S16-My29819	NCP	%	102			70-130	Pass	
Xylenes - Total	S16-My29819	NCP	%	105			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-My30863	NCP	mg/L	0.001	0.002	24	30%	Pass	
Toluene	S16-My30863	NCP	mg/L	0.004	0.005	19	30%	Pass	
Ethylbenzene	S16-My30863	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-My30863	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-My30863	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-My30863	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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05452 NSW ICAC EXHIBIT

Envirolab

CHAIN OF CUSTODY

Pg 1/1

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone Parade Meatworks
DATE NEEDED BY: Standard
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) CBielby@jbsg.com.au; (3) JNicholson@jbsg.com.au

LABORATORY BATCH NO.:
SAMPLERS: JN
QC LEVEL: NEPM (2013)

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

	SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavymetals	TRH	PAHs	OCPs/PCBs	OPPs	Asbestos*	Hold	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
1	QS01A	Soil	10/5/16		Jar		X	X	X	X	X					* NEPM
2	QS02A	↓	↓		Bag							X				500mL sample
3	QS03A				Jar								X			

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 146353
Date Received: 10/05/16
Time Received: 18:00
Received by: D.F
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: J-Nicholson DATE: 10/5/16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: Daniel Ford DATE: 10/5/16 OF: ELS	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 – Chain of Custody - Generic

VOL 16

309

E15/0078/025/0005

SAMPLE RECEIPT ADVICE

Client Details	
Client	JBS & G (NSW & WA) Pty Ltd
Attention	Chris Bielby

Sample Login Details	
Your Reference	50648, Riverstone Parade Meatworks
Envirolab Reference	**146353**
Date Sample Received	10/05/2016
Date Instructions Received	10/05/2016
Date Results Expected to be Reported	**17/05/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	3 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	8.6
Cooling Method	Ice
Sampling Date Provided	YES

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

Please direct any queries to:

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

Sample and Testing Details on following page

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

email: sydney@envirolab.com.au
envirolab.com.au

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

CERTIFICATE OF ANALYSIS **146353**

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

Attention: Chris Bielby

Sample log in details:

Your Reference:	**50648, Riverstone Parade Meatworks**		
No. of samples:	3 Soils		
Date samples received / completed instructions received	10/5/2016	/	10/5/2016

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

Report Details:

Date results requested by: / Issue Date:	17/05/16	/	16/05/16
Date of Preliminary Report:	Not Issued		

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

Results Approved By:

Jacinta Hurst
Laboratory Manager

NSW ICAC EXHIBIT

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	146353-1
Your Reference	---------- -	Q501A
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	13/05/2016
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	94

NSW ICAC EXHIBIT

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	146353-1
Your Reference	---------- -	Q501A
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	11/05/2016
$TRHC_{10}$ - 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	%	75

NSW ICAC EXHIBIT

PAHs in Soil		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	11/05/2016
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98

NSW ICAC EXHIBIT

Organochlorine Pesticides in soil		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	12/05/2016
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	%	95

NSW ICAC EXHIBIT

Organophosphorus Pesticides		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	12/05/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	95

NSW ICAC EXHIBIT

PCBs in Soil		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date extracted	-	11/05/2016
Date analysed	-	12/05/2016
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	95

NSW ICAC EXHIBIT

Acid Extractable metals in soil		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date prepared	-	11/05/2016
Date analysed	-	11/05/2016
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	13
Copper	mg/kg	3
Lead	mg/kg	17
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	7

NSW ICAC EXHIBIT

Moisture		
Our Reference:	UNITS	146353-1
Your Reference	----------	Q501A
	-	
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date prepared	-	11/05/2016
Date analysed	-	12/05/2016
Moisture	%	4.9

NSW ICAC EXHIBIT

Asbestos ID - soils NEPM - ASB-001		
Our Reference:	UNITS	146353-2
Your Reference	---------- -	Q502A
Date Sampled	----------	10/05/2016
Type of sample		Soil
Date analysed	-	16/05/2016
Sample mass tested	g	654.42
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil (as per AS4964)	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos#1	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	Not applicable
ACM >7mm Estimation*	g	0.0000
FA and AF Estimation*	g	0.0000
ACM>7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001

NSW ICAC EXHIBIT

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.

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Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

NSW ICAC EXHIBIT

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			13/05/2016	[NT]	[NT]	LCS-13	13/05/2016
TRHC6 - C9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-13	102%
TRHC6 - C10	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-13	102%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-13	93%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-13	94%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-13	105%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-13	108%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-13	106%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	95	[NT]	[NT]	LCS-13	100%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
TRHC10 - C14	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-13	88%
TRHC15 - C28	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-13	74%
TRHC29 - C36	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-13	97%
TRH>C10-C16	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-13	88%
TRH>C16-C34	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-13	74%
TRH>C34-C40	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-13	97%
Surrogate o-Terphenyl	%		Org-003	71	[NT]	[NT]	LCS-13	76%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	96%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	95%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	101%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	93%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-13	76%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

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QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-13	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	102	[NT]	[NT]	LCS-13	120%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			12/05/2016	[NT]	[NT]	LCS-13	12/05/2016
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-13	104%
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-13	120%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-13	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-13	87%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-13	92%
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-13	79%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-13	99%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-13	100%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-13	82%
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-13	74%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	96	[NT]	[NT]	LCS-13	112%

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QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			12/05/2016	[NT]	[NT]	LCS-13	12/05/2016
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	93%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	79%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	92%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	103%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	75%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	92%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-13	115%
Surrogate TCMX	%		Org-008	96	[NT]	[NT]	LCS-13	97%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			12/05/2016	[NT]	[NT]	LCS-13	12/05/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-13	113%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	96	[NT]	[NT]	LCS-13	95%

NSW ICAC EXHIBIT

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Date analysed	-			11/05/2016	[NT]	[NT]	LCS-13	11/05/2016
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	LCS-13	109%
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	LCS-13	94%
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-13	103%
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-13	107%
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-13	101%
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	LCS-13	88%
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-13	100%
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-13	100%

NSW ICAC EXHIBIT

Report Comments:

Asbestos-ID in soil:
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.
This is reported outside our scope of NATA accreditation.

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

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

NSW ICAC EXHIBIT

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Organochlorine Pesticides in soil*	*Organophosphorus Pesticides*	*PCBs in Soil*	*Acid Extractable metals in soil*	*Asbestos ID - soils NEPM - ASB-001*	*On Hold*
Q501A	✓	✓	✓	✓	✓	✓	✓		
Q502A								✓	
Q503A									✓

07711 NSW ICAC EXHIBIT

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone Parade
DATE NEEDED BY: standard TAT

LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)

PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) ehawley@jbsg.com.au; (3) cheilby@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

	SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	*Heavy Metals	Asbestos	TRH	BTEX	OCP	PCB	PAHs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
1	QS01A	SOIL	26.5		Jar + ice + bag		X	X	X	X	X	X	X			*Heavy Metals = 8 heavy metals
2	QS02A	↓	↓		↓		↓	↓	↓	↓	↓	↓	↓			
																'Asbestos = WA NEPC 500mL

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 147482
Date Received: 27/05/16
Time Received: 14:00
Received by: D.F
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 27.5.16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: Dave Ford DATE: 27/05/16 OF: Els	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 – Chain of Custody - Generic

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

email: sydney@envirolab.com.au
envirolab.com.au

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

CERTIFICATE OF ANALYSIS **147482**

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

Attention: Chris Bielby

Sample log in details:

Your Reference:	**50648, Riverstone Parade**		
No. of samples:	2 Soils		
Date samples received / completed instructions received	27/05/16	/	27/05/16

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

Report Details:

Date results requested by: / Issue Date:	3/06/16	/	2/06/16
Date of Preliminary Report:	Not Issued		

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

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	147482-1	147482-2
Your Reference	---------- -	QS01A	QS02A
Date Sampled	----------	26/05/2016	26/05/2016
Type of sample		Soil	Soil
Date extracted	-	30/05/2016	30/05/2016
Date analysed	-	30/05/2016	30/05/2016
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	118	100

NSW ICAC EXHIBIT

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	147482-1	147482-2
Your Reference	---------- -	QS01A	QS02A
Date Sampled	----------	26/05/2016	26/05/2016
Type of sample		Soil	Soil
Date extracted	-	30/05/2016	30/05/2016
Date analysed	-	30/05/2016	30/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	75	73

NSW ICAC EXHIBIT

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147482-1 QS01A 26/05/2016 Soil	147482-2 QS02A 26/05/2016 Soil
Date extracted	-	30/05/2016	30/05/2016
Date analysed	-	30/05/2016	30/05/2016
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.2
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	2.3
Anthracene	mg/kg	<0.1	0.5
Fluoranthene	mg/kg	<0.1	4.3
Pyrene	mg/kg	<0.1	4.4
Benzo(a)anthracene	mg/kg	<0.1	2.0
Chrysene	mg/kg	<0.1	1.8
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2.6
Benzo(a)pyrene	mg/kg	<0.05	1.7
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.7
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.7
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	2.3
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	2.3
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	2.4
Total Positive PAHs	mg/kg	NIL (+)VE	21
Surrogate p-Terphenyl-d14	%	88	94

NSW ICAC EXHIBIT

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147482-1 QS01A 26/05/2016 Soil	147482-2 QS02A 26/05/2016 Soil
Date extracted	-	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	94	93

NSW ICAC EXHIBIT

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147482-1 QS01A 26/05/2016 Soil	147482-2 QS02A 26/05/2016 Soil
Date extracted	-	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	94	93

NSW ICAC EXHIBIT

Acid Extractable metals in soil			
Our Reference:	UNITS	147482-1	147482-2
Your Reference	----------	QS01A	QS02A
	-		
Date Sampled	----------	26/05/2016	26/05/2016
Type of sample		Soil	Soil
Date prepared	-	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016
Arsenic	mg/kg	8	5
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	15	13
Copper	mg/kg	9	46
Lead	mg/kg	10	130
Mercury	mg/kg	<0.1	0.2
Nickel	mg/kg	2	6
Zinc	mg/kg	8	110

NSW ICAC EXHIBIT

Moisture			
Our Reference:	UNITS	147482-1	147482-2
Your Reference	----------	QS01A	QS02A
	-		
Date Sampled	----------	26/05/2016	26/05/2016
Type of sample		Soil	Soil
Date prepared	-	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016
Moisture	%	20	12

NSW ICAC EXHIBIT

Asbestos ID - soils NEPM - ASB-001			
Our Reference:	UNITS	147482-1	147482-2
Your Reference	---------- -	QS01A	QS02A
Date Sampled	----------	26/05/2016	26/05/2016
Type of sample		Soil	Soil
Date analysed	-	2/06/2016	2/06/2016
Sample mass tested	g	683.03	815.56
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (as per AS4964)	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	Not applicable	Not applicable
ACM >7mm Estimation*	g	0.0000	0.0000
FA and AF Estimation*	g	0.0000	0.0000
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*[#2]	%(w/w)	<0.001	<0.001

NSW ICAC EXHIBIT

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

NSW ICAC EXHIBIT

Method ID	Methodology Summary

NSW ICAC EXHIBIT

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
TRHC6 - C9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	98%
TRHC6 - C10	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	98%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-2	89%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-2	94%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	99%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-2	103%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	99%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	105	[NT]	[NT]	LCS-2	101%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
TRHC10 - C14	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	113%
TRHC15 - C28	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	102%
TRHC29 - C36	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	123%
TRH>C10-C16	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	113%
TRH>C16-C34	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	102%
TRH>C34-C40	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	123%
Surrogate o-Terphenyl	%		Org-003	78	[NT]	[NT]	LCS-2	89%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	102%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	101%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	111%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	101%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	108%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	81%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

NSW ICAC EXHIBIT

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-2	101%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	92	[NT]	[NT]	LCS-2	120%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			31/05/2016	[NT]	[NT]	LCS-2	31/05/2016
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-2	91%
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-2	95%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	102%
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-2	104%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	101%
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-2	104%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	105%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	121%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	102%
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-2	80%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	95	[NT]	[NT]	LCS-2	114%

NSW ICAC EXHIBIT

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			31/05/2016	[NT]	[NT]	LCS-2	31/05/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-2	125%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	95	[NT]	[NT]	LCS-2	96%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			30/05/2016	[NT]	[NT]	LCS-2	30/05/2016
Date analysed	-			31/05/2016	[NT]	[NT]	LCS-2	31/05/2016
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	LCS-2	110%
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	LCS-2	109%
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	110%
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	112%
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	104%
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	LCS-2	86%
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	104%
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	105%

Report Comments:

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.
This is reported outside our scope of NATA accreditation.

Asbestos ID was analysed by Approved Identifier:	Matt Mansfield
Asbestos ID was authorised by Approved Signatory:	Lulu Scott

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

07714 NSW ICAC EXHIBIT

envirolab

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 50648
PROJECT NAME: Riverstone
DATE NEEDED BY: Standard
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....e.howley.....@jbsg.com.au; (3) .....c.loxley.....@jbsg.com.au

LABORATORY BATCH NO.:
SAMPLERS: EH
QC LEVEL: NEPM (2013)

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy Metals*	Asbestos'	TRH	BTEX	PAHs	OCP	PCBs	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
(1) QS03A	SOIL	1-6-16		Jar + ice + bag		X	X								* Heavy Metals = 8 Heavy Metals
															'Asbestos = WA NEPC 2013 500mL.

ENVIROLAB

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

Job No: 147827
Date Received: 2/6/2016
Time Received: 13:25
Received by: RL 11.5
Temp: Cool/Ambient
Cooling: Ice/icepack
Security: Intact/Broken/None

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 1-6-16 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: P.Raj EHS DATE: 2/6/2016 13-25 OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: 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

IMSO FormsO13 – Chain of Custody - Generic

SAMPLE RECEIPT ADVICE

Client Details	
Client	JBS & G (NSW & WA) Pty Ltd
Attention	Chris Bielby

Sample Login Details	
Your Reference	50648, Riverstone
Envirolab Reference	**147827**
Date Sample Received	02/06/2016
Date Instructions Received	02/06/2016
Date Results Expected to be Reported	**09/06/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on receipt (°C)	11.5
Cooling Method	Ice
Sampling Date Provided	YES

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

Please direct any queries to:

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

Sample and Testing Details on following page

Sample Id	*Acid Extractable metals in soil*	*Asbestos ID - soils NEPM - ASB-001*
QS03A	✓	✓

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

email: sydney@envirolab.com.au
envirolab.com.au

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

CERTIFICATE OF ANALYSIS **147827**

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

Attention: Chris Bielby

Sample log in details:

Your Reference:	**50648, Riverstone**		
No. of samples:	1 Soil		
Date samples received / completed instructions received	02/06/16	/	02/06/16

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:	9/06/16	/	7/06/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

Jacinta Hurst
Laboratory Manager

NSW ICAC EXHIBIT

Acid Extractable metals in soil		
Our Reference:	UNITS	147827-1
Your Reference	----------	QS03A
	-	
Date Sampled	----------	1/06/2016
Type of sample		Soil
Date prepared	-	02/06/2016
Date analysed	-	03/06/2016
Arsenic	mg/kg	8
Cadmium	mg/kg	0.5
Chromium	mg/kg	13
Copper	mg/kg	26
Lead	mg/kg	190
Mercury	mg/kg	0.2
Nickel	mg/kg	6
Zinc	mg/kg	170

NSW ICAC EXHIBIT

Moisture		
Our Reference:	UNITS	147827-1
Your Reference	----------	QS03A
	-	
Date Sampled	----------	1/06/2016
Type of sample		Soil
Date prepared	-	02/06/2015
Date analysed	-	03/06/2015
Moisture	%	9.8

NSW ICAC EXHIBIT

Asbestos ID - soils NEPM - ASB-001		
Our Reference:	UNITS	147827-1
Your Reference	---------- -	QS03A
Date Sampled	----------	1/06/2016
Type of sample		Soil
Date analysed	-	7/06/2016
Sample mass tested	g	858.11
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil (as per AS4964)	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	Not applicable
ACM >7mm Estimation*	g	0.0000
FA and AF Estimation*	g	0.0000
ACM>7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation*[#2]	%(w/w)	<0.001

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Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

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QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			02/06/2016	[NT]	[NT]	LCS-1	02/06/2016
Date analysed	-			03/06/2016	[NT]	[NT]	LCS-1	03/06/2016
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	LCS-1	107%
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	LCS-1	102%
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-1	105%
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-1	103%
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-1	99%
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	LCS-1	101%
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-1	99%
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-1	100%

NSW ICAC EXHIBIT

Report Comments:

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.
This is reported outside our scope of NATA accreditation.

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

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

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Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Appendix E Pro UCL Calculations

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	0	1
	Asb	d_Asb
1	776914539	0
2	776914539	0
3	776914539	0
4	776914539	0
5	776914539	0
6	776914539	0
7	776914539	0
8	776914539	0
9	776914539	0
10	776914539	0
11	776914539	0
12	36.5771812	1
13	776914539	0
14	776914539	0
15	776914539	0
16	776914539	1
17	776914539	0
18	776914539	0
19	776914539	0
20	776914539	0
21	776914539	0
22	776914539	0
23	776914539	0
24	776914539	0
25	776914539	0
26	0.98400984	1
27	776914539	0
28	776914539	0
29	776914539	0
30	5.29531568	1
31	776914539	0
32	776914539	0
33	776914539	0
34	1.78571429	1
35	776914539	0
36	776914539	0
37	743083004	1
38	93.6507937	1
39	776914539	0
40	776914539	0
41	776914539	0
42	776914539	0
43	32.9723225	1
44	776914539	0
45	3.87351779	1
46	776914539	0
47	2180.30303	1
48	776914539	0
49	776914539	0
50	49.6365524	1
51	776914539	0
52	776914539	0
53	776914539	0

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/20/2016 11:16:02 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Asb

General Statistics

Total Number of Observations	53	Number of Distinct Observations	11
Number of Detects	11	Number of Non-Detects	42
Number of Distinct Detects	11	Number of Distinct Non-Detects	1
Minimum Detect	0.777	Minimum Non-Detect	0.777
Maximum Detect	2180	Maximum Non-Detect	0.777
Variance Detects	413250	Percent Non-Detects	79.25%
Mean Detects	354.1	SD Detects	642.8
Median Detects	68.87	CV Detects	1.815
Skewness Detects	2.706	Kurtosis Detects	7.858
Mean of Logged Detects	3.96	SD of Logged Detects	2.632

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.606	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.291	Lilliefors GOF Test
5% Lilliefors Critical Value	0.267	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	74.12	Standard Error of Mean	45.22
SD	313.9	95% KM (BCA) UCL	167.2
95% KM (t) UCL	149.8	95% KM (Percentile Bootstrap) UCL	152.8
95% KM (z) UCL	148.5	95% KM Bootstrap t UCL	296.7
90% KM Chebyshev UCL	209.8	95% KM Chebyshev UCL	271.2
97.5% KM Chebyshev UCL	356.5	99% KM Chebyshev UCL	524

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.219	Anderson-Darling GOF Test
5% A-D Critical Value	0.81	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.116	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.274	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.352	k star (bias corrected MLE)	0.316
Theta hat (MLE)	1007	Theta star (bias corrected MLE)	1119
nu hat (MLE)	7.739	nu star (bias corrected)	6.962
MLE Mean (bias corrected)	354.1	MLE Sd (bias corrected)	629.5

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0558	nu hat (KM)	5.911
Approximate Chi Square Value (5.91, α)	1.595	Adjusted Chi Square Value (5.91, β)	1.533
95% Gamma Approximate KM-UCL (use when n>=50)	274.7	95% Gamma Adjusted KM-UCL (use when n<50)	285.7

Gamma (KM) may not be used when k hat (KM) is < 0.1

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58	Gamma ROS Statistics using Imputed Non-Detects			
59	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
60	GROS may not be used when kstar of detected data is small such as < 0.1			
61	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
62	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
63	Minimum	0.01	Mean	73.51
64	Maximum	2180	Median	0.01
65	SD	317	CV	4.312
66	k hat (MLE)	0.112	k star (bias corrected MLE)	0.119
67	Theta hat (MLE)	654.6	Theta star (bias corrected MLE)	620.3
68	nu hat (MLE)	11.9	nu star (bias corrected)	12.56
69	MLE Mean (bias corrected)	73.51	MLE Sd (bias corrected)	213.5
70			Adjusted Level of Significance (β)	0.0455
71	Approximate Chi Square Value (12.56, α)	5.6	Adjusted Chi Square Value (12.56, β)	5.47
72	95% Gamma Approximate UCL (use when n>=50)	164.9	95% Gamma Adjusted UCL (use when n<50)	168.8
73				
74	Lognormal GOF Test on Detected Observations Only			
75	Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test	
76	5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level	
77	Lilliefors Test Statistic	0.144	Lilliefors GOF Test	
78	5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level	
79	Detected Data appear Lognormal at 5% Significance Level			
80				
81	Lognormal ROS Statistics Using Imputed Non-Detects			
82	Mean in Original Scale	73.58	Mean in Log Scale	-4.455
83	SD in Original Scale	317	SD in Log Scale	6.029
84	95% t UCL (assumes normality of ROS data)	146.5	95% Percentile Bootstrap UCL	152.3
85	95% BCA Bootstrap UCL	187.5	95% Bootstrap t UCL	310.7
86	95% H-UCL (Log ROS)	3.574E+9		
87				
88	UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed			
89	KM Mean (logged)	0.622	95% H-UCL (KM -Log)	44.1
90	KM SD (logged)	2.055	95% Critical H Value (KM-Log)	3.692
91	KM Standard Error of Mean (logged)	0.296		
92				
93	DL/2 Statistics			
94	DL/2 Normal		DL/2 Log-Transformed	
95	Mean in Original Scale	73.81	Mean in Log Scale	0.0725
96	SD in Original Scale	316.9	SD in Log Scale	2.316
97	95% t UCL (Assumes normality)	146.7	95% H-Stat UCL	58.4
98	DL/2 is not a recommended method, provided for comparisons and historical reasons			
99				
100	Nonparametric Distribution Free UCL Statistics			
101	Detected Data appear Gamma Distributed at 5% Significance Level			
102				
103	Suggested UCL to Use			
104	95% KM (t) UCL	149.8	95% GROS Approximate Gamma UCL	164.9
105	95% Approximate Gamma KM-UCL	274.7		
106				
107	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
108	Recommendations are based upon data size, data distribution, and skewness.			
109	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
110	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
111				

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		Name	Name	Signature	Date
A	Ellen Howley	Matthew Parkinson	Matthew Parkinson	Draft for Client Review	20/06/2016

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