2 March 2018

Todd Clarke
Coordinator Projects
Randwick City Council
Via email: todd.clarke@randwick.nsw.gov.au

Detailed Asbestos Assessment – Jack Vanny Reserve
Marine Parade, Maroubra, NSW

Dear Todd,

1. Introduction and Requirements

JBS&G Australia Pty Ltd (JBS&G) was engaged by Randwick City Council (RCC, the client) to undertake a detailed asbestos assessment within a portion of the Jack Vanny Reserve, located at Mistral Point, Marine Parade, Maroubra, NSW (the site). The site is legally defined as part Lot 1 Section 3 in Deposited Plan 758649.

The location of the investigation area within the Jack Vanny Reserve is shown in **Figure 1** and **Figure 2** provided to **Attachment 2**. The approximate site area is 3200 m^2 as indicated to JBS&G by the client.

The detailed asbestos assessment was specifically required in response to Direction 'D' as advised to NSW EPA Clean Up Notice 1559630. The specific requirement addressed include:

***D**. By 5pm Friday 29 December 2017, engage an occupational hygienist (that is registered with the Australian Institute of Occupational Hygienists Inc) to determine the extent of the asbestos contamination in the Impacted Area. Asbestos fragments on the surface of the Impacted Area.*

A copy of the issued NSW EPA Clean Up Notice 1559630 and subsequent clarification from NSW EPA is included as **Attachment 8**.

It is understood that the original deadline for submission of the detailed asbestos assessment report has been extended to 2 March 2018.

2. Objectives

The objectives of the detailed asbestos assessment were as follows:

- Identify the extent of asbestos contamination to the ground surface across the site area;
- Identify the extent of asbestos contamination vertically through surface and underlying soils;
- Classify the condition of any identified asbestos contamination as either friable or non-friable; and
- Provide advice on the risk of any identified asbestos contamination in its current condition to future users of the site in its use as publicly accessible open space.

3. Scope of Works

The following scope of works was undertaken to satisfy the requirements of the issued NSW EPA Clean UP Notice:

- Undertake a review of available historical aerial imagery to assess the changing conditions of the site over time.
- Undertake a site walkover of accessible ground surfaces;
- Undertake an airborne asbestos fibre monitoring event at four static locations during the proposed detailed asbestos assessment in accordance with the National Occupational Health and Safety Commission's *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres – 2nd Edition* [NOHSC: 3003 (2005)].
- Collection of representative soil samples from 22 locations across the site area via mechanical or hand excavation to the depth of accessible fill materials;
- Collection of duplicate and triplicate samples for quality assurance / quality control purposes;
- Collection of representative surface soil samples from 5 locations outside the specified site area to undertake preliminary assessment of soil conditions outside the site area;
- Laboratory analysis of selected primary and duplicate soil and materials samples by Eurofins | mgt, a National Association of Testing Authorities (NATA) accredited laboratory to assess for the presence of asbestos containing material (ACM), friable asbestos (FA) and asbestos fines (AF) in accordance with NEPC (2013)[1];
- Laboratory analysis of triplicate soil samples by Envirolab, a NATA accredited laboratory to assess for the presence of asbestos containing material (ACM), friable asbestos (FA) and asbestos fines (AF) in accordance with NEPC (2013);
- Comparison of soil analytical results against NEPC (2013) health-based screening levels (HSLs) for asbestos contamination in soil for recreational public open space use (HSL-C); and
- Preparation of this letter report documenting the findings and conclusions of the detailed asbestos assessment.

4. Adopted Site Criteria

Soil data as generated by this detailed asbetsos assessment shall be compared to health based screening levels (HSL) advised by NEPC (2013) for recreational public open space use (HSL-C) as shown in **Table A** below.

Table A – Recreational (HSL-C) Health Screening Levels for Asbestos Contamination in Soil

Form of Asbestos	Health Screening Level
Bonded (non-friable) ACM (>7 mm fraction)	0.02 % w/w
FA and AF (friable asbestos)	0.001 % w/w
All forms of asbestos (bonded and friable)	No visible asbestos for surface soils

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

5. Detailed Asbestos Assessment

5.1 Historical Aerial Photographs

A review of available historical aerial photographs was undertaken within publicly accessible digital media[2].

A summary of the completed historical aerial photograph review is as follows:

- 1943 – the site appears to comprise rocky outcrops and small amounts of grassed areas with small cliffs and gullies visible within the boundaries of the present day site area.
- 2000 – the site appears to have been filled to a more even level with less visible rocky outcrops. Vegetation cover visible across area within boundaries of present day site.
- 2009 – the site appears to be covered with well established vegetation within the boundaries of the present day site. Vegetation cover is expected to be consistent with those observed in present day.

5.2 Site Description

The site was observed to comprise grassed areas with dense vegetation comprising dune shrubs (<2.0 m height) and protected native grasses, with rocky outcrops to the eastern portion. The site was bound by other public spaces with grassed areas of Jack Vanny Reserve to the north, west and south, and rock shelves and small cliffs to the east bordering the Pacific Ocean. The site was observed to slope to the south and east, forming a drainage path towards the Pacific Ocean. Small walking tracks were observed to traverse the site area between vegetated areas with exposed sand visible and large amounts of anthropogenic debris observed including assumed asbetsos containing materials (ACM) as asbestos cement sheeting debris, glass, tile, brick and concrete.

Evidence of erosion was observed in the eastern portion of the site in expected drainage paths towards the Pacific Ocean, with large amounts of collected anthropogenic debris including ACM, glass, tile and brick pieces in some areas.

The site was fenced to restrict general access at the time of the detailed asbestos assessment.

5.3 Field Works

The site was attended on 16 February 2018 by the appointed JBS&G project manager Michael Samuel. Michael is a SafeWork NSW Licensed Asbestos Assessor (LAA 000157) and an Associate member of the AIOH. Michael was accompanied by the appointed JBS&G field staff to ensure that the project objectives were understood and proposed field works were achievable.

The detailed asbestos assessment field works were undertaken on 16 February 2018, by Michael Cattlin, one of JBS&G's experienced SafeWork NSW Licensed Asbestos Assessor's (LAA 001218) and Jess Staehli, one of JBS&G's experienced environmental consultants who is also a competent person in accordance with the definition provided in the *Work Health and Safety Regulation* (2017).

A summary of the completed field works is as follows:

- The site was access via the southern fence line to enable access for the 8 tonne excavator.
- Four static air sampling pumps were installed on site boundaries at the commencement of the detailed asbestos assessment and prior to any intrusive works. Flow rates were set at 1.5 litres per minute and were proposed to run for the duration of the detailed asbestos assessment.

[2] NSW Government Spatial Services, viewed at https://maps.six.nsw.gov.au/ (21 February 2018)

- Proposed test pit locations were located using a hand-held GPS system, with test pit locations based on an approximate 12 m x 12 m systematic grid.
- A total of 22 test pits were installed within the site area via mechanical excavator or hand excavation.
- A further five shallow (0-0.1 m below ground surface (bgs)) test pits were installed via hand excavation to assess immediate areas outside the site boundaries at the request of the client.
- Test pit locations are shown in **Figure 3** provided to **Attachment 2**. Bore log descriptions of each test pit are included as **Attachment 4**.
- ACM, as asbestos cement fragments, were observed in all excavated test pits with the exception of TP03, TP06, TP12 and TP16.
- Representative 500 mL soil samples were collected from the soil profile at depths from each test pit selected by the field personnel to accurately determine the potential presence of free asbestos fibres within soil. Duplicate and triplicate samples were collected for quality assurance at a rate of one per 20- primary samples.
- Two material samples of suspected ACM were also collected during the field works. One sample (TP01_0.2-0.3-MAT) of fibrous white materials was collected from test pit TP01 and another (MAT_02) was collected from a large sheet of compressed asbestos cement observed to be buried adjacent TP20.
- Samples were collected using a new pair of nitrile gloves for each sample and were immediately transferred to individual plastic zip lock bags. Each sample was labelled with the JBS&G job number, the date of sampling, a unique sample identification and the samplers initials. Samples were then transferred to a storage container prior to transportation to the selected NATA accredited testing laboratory.
- A total of 78 primary samples, 4 duplicate samples, 4 triplicate samples and 2 material samples were transported under chain of custody documentation procedures to the primary NATA accredited testing laboratory (primary and duplicate soil samples and material samples) and secondary NATA accredited testing laboratory (triplicate samples).
- All airborne asbestos fibre monitoring samples were transported to the primary NATA accredited testing laboratory for analysis.

Photographs collected during the detailed asbestos assessment are included as **Attachment 3.**

6. Results

6.1 Soil Analytical Results

Asbestos in soil results summary table is included as **Attachment 5.**

Detailed laboratory reports and chain of custody documentation is included as **Attachment 6**.

The indicative extent of asbestos contamination is displayed in **Figure 4** provided to **Attachment 2.**

A summary of notable laboratory results is as follows:

- 26 of 78 primary soil samples reported the occurrence of FA and/or AF, with 9 of these samples reporting concentrations of FA/AF above the HSL-C threshold of 0.001 % w/w.
- 14 of 78 primary soil samples reported occurrence of ACM (>7 mm fraction), with 7 of these samples reporting concentrations of ACM above the HSL-C threshold of 0.02 % w/w.

- Test pit location TP03 reported occurrence of FA in sample TP03_0.2-0.3 above HSL-C threshold despite no visible ACM being observed during the field works.
- ACM (>7 mm fraction) was reported above the HSL-C threshold in duplicate sample QC02-16022018 which was collected in representation of primary sample TP09_0.2-0.3.
- No ACM or FA/AF was identified in any of the 5 surface soil samples collected from outside the site boundaries (SS01 – SS05, refer **Figure 3** to **Attachment 2**).
- No other duplicate or triplicate samples reported occurrences of ACM or FA/AF.
- The material sample TP1_0.2-0.3-MAT collected of white fibrous materials encountered at test pit TP01 approximately 0.2 m below ground surface was found not to contain asbestos.
- The material sample MAT-02 collected of the partially buried compressed asbestos cement sheet adjacent to TP20 was reported to contain chrysotile, amosite and crocidolite asbestos.

6.2 Airborne Asbestos Fibre Monitoring

The airborne asbetsos fibre monitoring report from the completed monitoring event during the detailed asbetsos assessment is included as **Attachment 7**.

All samples results were deemed satisfactory with all airborne respirable fibre concentrations reported at less than 0.01 fibres/mL.

7. Conclusions

Based on the observations made during the completed detailed asbetsos assessment, the reported laboratory results and the Limitations included as **Attachment 1**, the following conclusions are made:

- Friable and non-friable asbetsos was identified to ground surfaces and at various depths throughout the soil profile across the site area.
- Friable asbetsos above the adopted HSL-C threshold was reported in 9 samples collected at varying depths from 9 different test pit locations identified as:
    - TP03 (0.2-0.3 m bgs);
    - TP07 (0.5-0.6 m bgs);
    - TP09 (0.5-0.6 m bgs);
    - TP10 (0.2-0.3 m bgs);
    - TP14 (0.5-0.6 m bgs);
    - TP15 (0.2-0.3 m bgs);
    - TP17 (0.4-0.5 m bgs);
    - TP19 (0-0.1 m bgs); and
    - TP20 (0-0.1 m bgs).
- ACM was observed or identified via laboratory testing in 19 of the 22 installed test pits in the site area. No ACM or FA/AF was observed during investigation works or identified via laboratory testing of representative soil samples in Test pit locations TP06, TP12 and TP16.
- No ACM or FA/AF was observed during investigation works or identified via laboratory testing of representative surface soil samples in sample locations SS01, SS02 SS03, SS04 or SS05 located outside the site boundaries.

- It is presumed that all fill materials at the site are impacted by non-friable and/or friable asbetsos.
- Near surface contamination has the potential to migrate from site via surface water runoff and erosion given the exposed and sandy nature of soils. This is evidenced by the collections of anthropogenic debris, including ACM, in eastern low gradient portions of the site.

A program of management and/or remediation of the identified asbestos impacted fill materials is required to ensure the site is suitable for the ongoing use as public open space. Potential management and remediation options are available for the client to consider and shall be detailed as formal advice subsequent to this report.

Should you require further clarification, please contact the undersigned on 02 8245 0300 or by email msamuel@jbsg.com.au.

Yours sincerely:

Michael Samuel
Operations Manager Hazardous Materials
JBS&G Australia Pty Ltd

Reviewed / Approved by:

Matthew Parkinson
Certified Environmental Practitioner
JBS&G Australia Pty Ltd

Attachments:

(1) Limitations
(2) Figures
(3) Photos
(4) Test Pit Borelogs
(5) Asbestos in Soil Results Summary Table
(6) Laboratory Results and Chain of Custody Documentation
(7) Airborne Asbestos Fibre Monitoring Report – 16 February 2018
(8) NSW EPA Clean Up Notice and Supplementary Documentation

Attachment 1– 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.

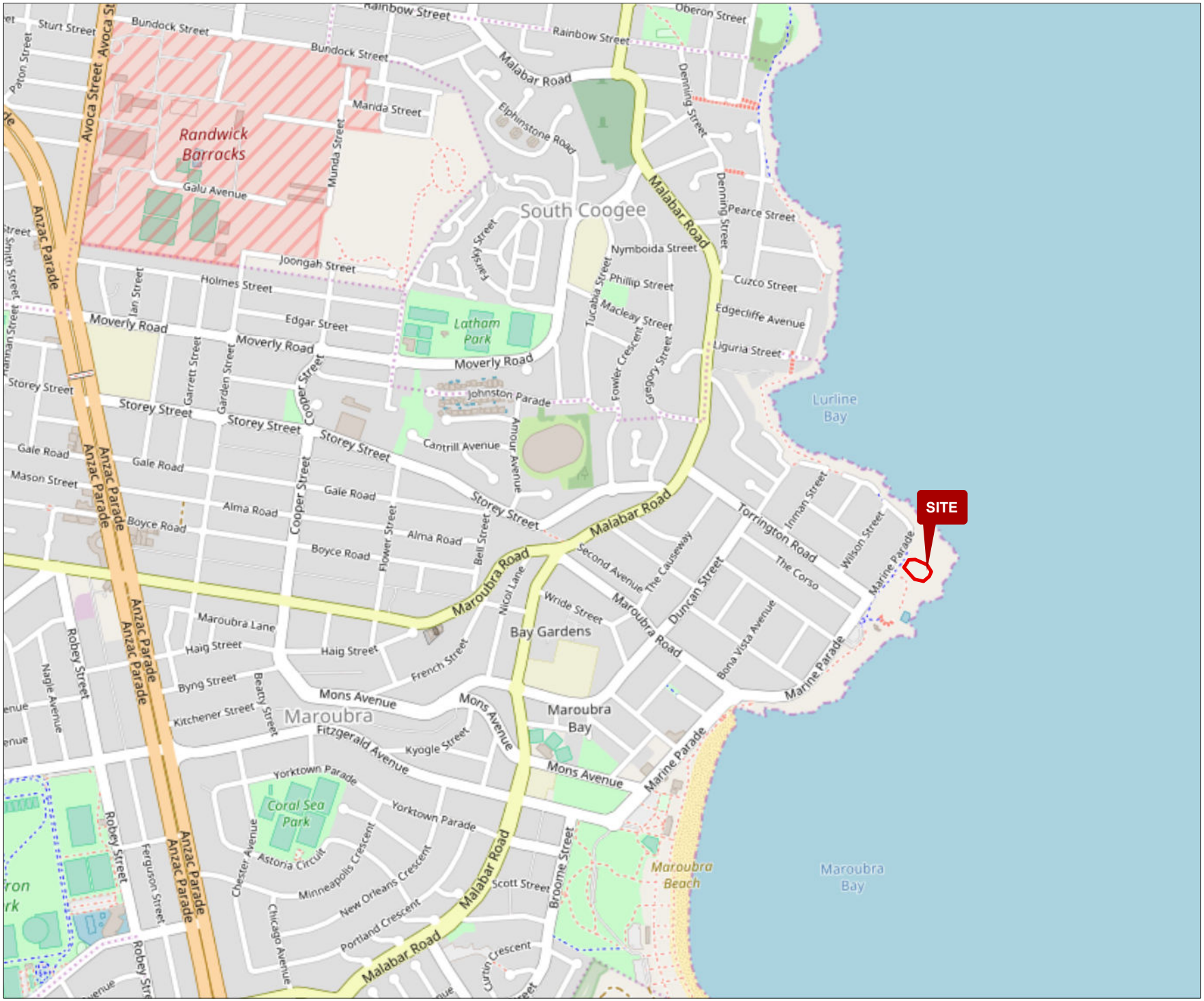
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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

Attachment 2 – Figures



Legend:

Approximate Site Boundary

JBS&G

Job No: 54640

Client: Randwick City Council

Version: R01 Rev A	Checked By: MS
Date 20/02/2018	Drawn By: AV

Scale 1:15,000

0 175 350

metres

Coor. Sys. GDA 1994 MGA Zone 56

Marine Parade
Maroubra Randwick, NSW

Part of Lot 1 Section 3 DP758649

SITE LOCATION

FIGURE: 1

File Name: 54640_01

Legend:

Approximate Site Boundary

JBS&G

Job No: 54640

Client: Randwick City Council

Version: R01 Rev A	Checked By: MS
Date 20/02/2018	Drawn By: AV

Scale 1:450

0 5.5 11

metres

Coor. Sys. GDA 1994 MGA Zone 56

Marine Parade
Maroubra Randwick, NSW

Part of Lot 1 Section 3 DP758649

SITE LAYOUT

FIGURE: 2

File Name: 54640_02
Reference: Nearmap - http://maps.au.nearmap.com - Imagery 19-01-2018

Legend:

- Approximate Site Boundary
- Surface Soil Sample Location
- Test Pit Location

JBS&G

Job No: 54640

Client: Randwick City Council

Version: Misc | Checked By: MS

Last updated on 20/02/2018 by avillafuerte

Scale 1:450

0 5.5 11

metres

Coor. Sys. GDA 1994 MGA Zone 56

Marine Parade
Maroubra Randwick, NSW

Part of Lot 1 Section 3 DP758649

SAMPLE LOCATIONS

FIGURE: 3

File Name: 54640_03
Reference: Nearmap - http://maps.au.nearmap.com - Imagery 19-01-2018

Legend:

- Approximate Site Boundary
- Friable Asbestos Above HSL-C (0.001% w/w)
- Friable Asbestos Below HSL-C (0.001% w/w)
- Non-friable ACM Identified Only
- Surface Soil Sample Location
- Test Pit Location

JBS&G

Job No: 54640

Client: Randwick City Council

Version: L01 Rev A | Checked By: MS

Last updated on 2/03/2018 by avillafuerte

Scale 1:450

0 5.5 11

metres

Coor. Sys. GDA 1994 MGA Zone 56

Marine Parade
Maroubra Randwick, NSW

Part of Lot 1 Section 3 DP758649

INDICATIVE ASBESTOS CONTAMINATION AREAS

FIGURE: 4

File Name: 54640_04
Reference: Nearmap - http://maps.au.nearmap.com - Imagery 19-01-2018

Attachment 3 – Photograph Log

Photo 1: Anthropogenic inclusions of brick, concrete and tile in excavated test pit spoil at TP04

Photo 2: ACM as fibre cement sheet debris and anthropogenic inclusions of brick and concrete in excavated test pit spoil at TP10

Photo 3: Tyre and metal industrial waste within excavated test pit spoil at TP11

Photo 4: Anthropogenic debris and ACM debris to ground surface at TP19. Surface water run off expected to have resulted in deposits of debris in this location.

Photo 5: ACM and anthropogenic debris visible to ground surface at TP20

Photo 6: Large compressed asbestos cement sheet partially buried adjacent TP20

Source:

Rev	Description	Drn.	Date
DRAFT	Original Issue -	MS	01/03/2018

JBS&G

Attachment 3: Photographs

Client: Randwick City Council

Project: Jack Vanny Detailed Asbestos Assessment

Job No: 54640 File Name: L01 - Photo Log

Photo 7: Typical example of ACM debris within sub surface soils (TP04 shown)

Photo 8: Typical example of ACM debris within sub surface soils (TP10 shown)

Photo 9: Anthropogenic debris within excavated spoil at TP08

Photo 10: Anthropogenic and ACM debris within excavated spoil at TP15

Photo 11: exposed sandy soils along walking track traversing site. Anthropogenic debris visible in foreground

Photo 12: Large concrete waste adjacent TP18, natural sandstone outcrops visible in background

Source:

Rev	Description	Drn.	Date
DRAFT	Original Issue -	MS	01/03/2018

Attachment 3: Photographs

Client: Randwick City Council

Project: Jack Vanny Detailed Asbestos Assessment

Job No: 54640 File Name: L01 - Photo Log

Attachment 4 – Test Pit Borelogs

TP01

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, coarse, loose, inclusions of brick, plastic, nails (10-20%)	TP01_0.0-0.1	No ACM observed
						TP01_0.2-0.3	
	0.5	0.30		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, increased inclusions (30-40%) of glass, concrete, metal nails, plastic, brick, suspect crumbly fibrous material (sample taken)		No ACM observed
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, concrete, brick, tin sheeting, plastic, glass (10-20%)	TP01_0.5-0.6	ACM observed
	1.0	0.70			Test Pit TP01 terminated at 0.7m		Test pit terminated in natural yellow-brown sand
	1.5						
	2.0						
	2.5						

TP02

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, coarse, loose, inclusions of organics (grasses)	TP02_0.0-0.1	No ACM observed
		0.10		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of trace amounts of plastics, tiles	TP02_0.2-0.3	No ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, concrete, tiles (40-50%)	TP02_0.5-0.6	ACM observed
		0.90		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, concrete boulders, brick, tiles (10-20%)	TP02_0.9-1.0	ACM observed
	1.0						
		1.00			Test Pit TP02 terminated at 1m		Test pit terminated due to refusal on sandstone
	1.5						
	2.0						
	2.5						

TP03

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.1
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, coarse, loose, inclusions of plastic, wire, metal, brick (10%)	TP03_0-0.1.0	No ACM observed, QA16022018-1 and QC16022018-1 samples taken
		0.20		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of concrete boulder, terracotta tiles (20%	TP03_0.2-0.3	No ACM observed
		0.30		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of concrete, brick, terracotta tiles, tiles (40%), hit terracotta tiles at 0.3 mbgs		No ACM observed
	0.5					TP03_0.5-0.6	
	1.0					TP03_0.9-1.0	
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, fewer inclusions of concrete, brick, terracotta tiles, tiles		No ACM observed
		1.10			Test Pit TP03 terminated at 1.1m		Test pit terminated due to hole collapse in natural sands
	1.5						
	2.0						
	2.5						

TP04_01

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, medium density, coarse		No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, medium density, coarse, inclusions of ACM fragments, brick, tiles, concrete (40%)		ACM observed
		0.30			Test Pit TP04_01 terminated at 0.2m		Test pit terminated due to refusal on sandstone
	0.5						
	1.0						
	1.5						
	2.0						
	2.5						

TP04_02

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, medium density, coarse	TP04_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, medium density, coarse, inclusions of ACM fragments, brick, tiles, concrete (40%)	TP04_0.2-0.3	ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, tiles, concrete, plastic (40%)	TP04_0.5-0.6	ACM observed
	1.0						
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, concrete, tiles, plastics (high 40%)	TP04_1.0-1.1	ACM observed
		1.20			Test Pit TP04_02 terminated at 1.2m		Test pit terminated due to hole collapse in natural sands
	1.5						
	2.0						
	2.5						

TP05

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, topsoil, dark brown, well-graded, medium sand, medium density, inclusions of plastics, organics (roots) (10%)	TP05_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, medium sand, medium density, inclusions of brick, terracotta tiles, concrete, plastic	TP05_0.2-0.3	No ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of brick, ACM fragments, concrete boulders, plastics, tiles (40%)	TP05_0.5-0.6	ACM observed
	1.0						
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of brick, concrete, tiles, tin, plastic, increased ACM fragments (40%)	TP05_1.0-1.1	ACM observed
		1.20			Test Pit TP05 terminated at 1.2m		Test pit terminated due to hole collapse
	1.5						
	2.0						
	2.5						

TP06

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, topsoil, dark brown, well-graded, medium sand, loose, inclusions of organics (roots) (10%)	TP06_0-.00.1	No ACM observed
		0.10		Fill	FILL - SAND, dark brown, well-graded, medium sand, loose, inclusions of brick, one piece of steel (5%)		No ACM observed
						TP06_0.2-0.3	
		0.30		SW	SAND - light orange, well-graded, medium sand, loose		
	0.5						
		0.60			Test Pit TP06 terminated at 0.6m		Test pit terminated in natural sands
	1.0						
	1.5						
	2.0						
	2.5						

TP07

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, topsoil, dark brown, well-graded, coarse, loose, inclusions of organics (roots) (10%)	TP07_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, light orange, well-graded, coarse, loose, no inclusions observed	TP07_0.2-0.3	No ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of brick, concrete, terracotta tiles (40%)	TP07_0.5-0.6	No ACM observed
	1.0						
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, oil drum (old, in poor condition), brick, concrete, tiles, plastic, tin (40%)	TP07_1.0-1.1	ACM observed
		1.20			Test Pit TP07 terminated at 1.2m		Test pit terminated due to refusal on sandstone
	1.5						
	2.0						
	2.5						

TP08

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, medium sand, medium density, inclusions of organics (roots) (10%)	TP08_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, light orange, well-graded, coarse, loose, inclusions of organics (roots) (10%)	TP08_0.2-0.3	No ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, terracotta tiles, concrete (20%)	TP08_0.5-0.6	ACM observed
	1.0						
		1.00		Fill	FILL - SAND, light brown, well-graded, coarse, loose, inclusions of bricks, concrete, vinyl tile, tiles (20%)	TP08_1.0-1.1	No ACM observed
	1.5						
		1.50		Fill	FILL - SAND, light brown, well-graded, coarse, loose, inclusions of bricks, terracotta pipe, tiles, concrete, sandstone boulders	TP08_1.5-1.6	No ACM observed
	2.0						
		2.00			Test Pit TP08 terminated at 2m		Test pit terminated due to refusal on sandstone
	2.5						

TP09

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.8
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, coarse, loose, inclusions of organics (roots) (10%)	TP09_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of brick, concrete (20%)	TP09_0.2-0.3	ACM observed, QA02-16022018 and QC02-16022018 samples taken
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, high amount of inclusions of ACM fragments, brick, terracotta tiles, glass, tiles, plastic, steel, concrete (50%)	TP09_0.5-0.6	ACM observed
	1.0						
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, high amount of inclusions of ACM fragments, brick, wood, concrete, glass, steel, tiles (50%)	TP09_1.0-1.1	ACM observed
	1.5						
		1.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, burnt paper remains, brick, concrete, terracotta pipe, tiles, steel, glass (high 50%)	TP09_1.5-1.6	ACM observed
		1.80			Test Pit TP09 terminated at 1.8m		Test pit terminated due to refusal on sandstone
	2.0						
	2.5						

TP10

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, coarse, loose, inclusions of fence poling, organics (roots) (10%)	TP10_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragment, brick, concrete (20%)	TP10_0.2-0.3	ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, concrete, glass, tin can (40%)	TP10_0.5-0.6	ACM observed
	1.0						
		1.00		Fill	FILL - SAND, dark brown, well-graded, coarse, loose, inclusions of ACM fragments, brick, concrete, glass and plastic, black moist soil observed (approx. 1 L)	TP10_1.0-1.1	ACM observed
		1.20			Test Pit TP10 terminated at 1.2m		Test pit terminated due to refusal on sandstone
	1.5						
	2.0						
	2.5						

TP11

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, dark brown, well-graded, medium sand, medium density, inclusions of plastic, organics (roots) (10%)	TP11_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, dark brown, well-graded, coarse, medium density, inclusions of plastics, bricks, concrete, tiles, terracotta tiles, can	TP11_0.2-0.3	No ACM observed
	0.5						
		0.50		Fill	FILL - SAND, dark brown, well-graded, coarse, medium density, inclusions of 3 car tyres, old steel, bricks, concrete, ACM fragments, glass (50%)	TP11_0.5-0.6	ACM observed
		0.70			Test Pit TP11 terminated at 0.7m		Test pit terminated due to refusal on sandstone
	1.0						
	1.5						
	2.0						
	2.5						

TP12

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, grey-brown, heterogeneous, dry, loose, fine sands, inclusions of roots/grasses, plastic	TP12_0.0-0.1	No ACM observed
		0.20		Fill	FILL - SAND, yellow, heterogeneous, dry, loose, fine sands, inclusions of sandstone cobbles and gravels	TP12_0.2-0.3	No ACM observed
		0.30		Fill	FILL - SAND, grey-brown, heterogeneous, dry, well-graded, inclusions of plastic, wood, metal, glass, terracotta, bricks (20%)		No ACM observed
	0.5					TP12_0.5-0.6	
		0.60			Test Pit TP12 terminated at 0.6m		Test pit terminated due to refusal on sandstone
	1.0						
	1.5						
	2.0						
	2.5						

TP13

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, grey-brown, heterogeneous, dry, well-graded, medium density, inclusions of ACM fragment, terracotta, sandstone cobbles, concrete, tiles, metal, brick (10%)	TP13_0.0-0.1	ACM observed
		0.10		Fill	FILL - SAND, grey-brown, heterogeneous, dry, well-graded, medium density, increased inclusions of ACM fragments, terracotta, sandstone cobbles, concrete, tiles, metal, brick (20-30%)		ACM observed
						TP13_0.2-0.3	
	0.5						
		0.50		Fill	FILL - SAND, grey-brown, heterogeneous, dry, well-graded, medium density, inclusions as above with large rusted metal hydrant, glass bottle, concrete boulders	TP13_0.5-0.6	ACM observed
						TP13_0.9-1.0	ACM observed
	1.0						
	1.5						
		1.50			Test Pit TP13 terminated at 1.5m		Test pit terminated due to hole collapse in fill materials
	2.0						
	2.5						

TP14

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, heterogeneous, dry, medium density, fine sands, inclusions of roots/grass, concrete gravels, glass, brick fragments (<10%)	TP14_0-0.1.0	No ACM observed
		0.20		Fill	FILL - SAND, brown, heterogeneous, dry, medium density, fine sands, inclusions of brick, tiles, concrete cobbles (10-20%)	TP14_0.2-0.3	No ACM observed
	0.5	0.50		Fill	FILL - SAND, brown, heterogeneous, dry, medium density, fine sands, inclusions of metal, concrete boulders, brick, sandstone boulders, ACM fragments, terracotta	TP14_0.5-0.6	ACM observed
	1.0					TP14_1.0-1.1	ACM observed
		1.20			Test Pit TP14 terminated at 1.2m		Test pit terminated due to hole collapse in fill materials
	1.5						
	2.0						
	2.5						

TP15

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 2
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, well-graded, coarse, loose, inclusions of ACM fragments, glass, brick, concrete, organics (roots) (30%)	TP15_0.0-0.2	ACM observed
		0.20		Fill	FILL - SAND, brown, well-graded, coarse, loose, inclusions of bricks, concrete, metal	TP15_0.2-0.3	ACM observed
	0.5					TP15_0.5-0.6	
	1.0					TP15_1.0-1.1	
	1.5						
	2.0	2.00			Test Pit TP15 terminated at 2m		Test pit terminated due to refusal on sandstone
	2.5						

TP16

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, reddish-brown, heterogeneous, dry, loose, inclusions of bricks, concrete boulders, metal, roots, terracotta, tiles (10%)	TP16_0.0-0.1	No ACM observed
						TP16_0.2-0.3	
		0.30			Test Pit TP16 terminated at 0.3m		Test pit terminated due to refusal on sandstone
	0.5						
	1.0						
	1.5						
	2.0						
	2.5						

TP17

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, heterogeneous, dry, medium sand, inclusions of ACM fragments, concrete, plastic, glass, brick, metal nails	TP17_0.0-0.1	ACM observed
						TP17_0.2-0.3	
		0.30		Fill	FILL - BRICK layer		
	0.5	0.40		Fill	FILL - SAND, brown, heterogeneous, dry, medium sand, inclusions of ACM fragments, concrete, plastic, glass, brick, metal nails	TP17_0.4-0.5	ACM observed
	1.0	0.50			Test Pit TP17 terminated at 0.5m		Test pit terminated due to refusal in fill materials (brick)
	1.5						
	2.0						
	2.5						

TP18

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.5
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, heterogeneous, damp, medium density, well-graded, inclusions of ACM fragments, plastic, terracotta (<10%)	TP18_0.0-0.1	Large quantities of ACM observed to ground surface
						TP18_0.2-0.3	
		0.30		SP	SAND - grey-brown, homogeneous, damp, medium density, poorly graded		No ACM observed
	0.5					TP18_0.4-0.5	
		0.50			Test Pit TP18 terminated at 0.5m		Test pit terminated due to refusal on sandstone
	1.0						
	1.5						
	2.0						
	2.5						

TP19

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.3
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, dry, loose, fine sand, inclusions of ACM fragments, glass, metal nails, brick frags, sandstone boulder	TP19_0.0-0.1	Large quantities of ACM observed to ground surface
		0.10		Fill	FILL - SAND, brown, heterogeneous, damp, medium density, traces of plastic, concrete, glass		
						TP19_0.2-0.3	No ACM observed
		0.30			Test Pit TP19 terminated at 0.3m		Test pit terminated due to refusal on sandstone
	0.5						
	1.0						
	1.5						
	2.0						
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 2/3/18

TP20

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, brown, dry, loose, fine sand, inclusions of ACM fragments, glass, tile, plastic, brick fragments, metal nails	TP20_0.0-0.1	ACM observed to ground surface and surrounding all pathways. South of test pit is ACM sheeting in poor condition, half-buried, sample MAT_02 taken
		0.20		Fill	FILL - SAND, brown, damp, loose, fine sand, inclusions of ACM fragments, glass, tile, plastic, brick fragments, metal nails	TP20_0.2-0.3	ACM observed
	0.5	0.50		SW	SAND - brown, homogeneous, damp, medium density	TP20_0.5-0.6	No ACM observed
		0.60			Test Pit TP20 terminated at 0.6m		Test pit terminated due to refusal on sandstone
	1.0						
	1.5						
	2.0						
	2.5						

TP21

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3):

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
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, grey, heterogeneous, damp, loose, fine sand, inclusions of ACM fragments, brick, plastic	TP21_0.0-0.1	ACM observed
		0.10		Fill	FILL - SAND, grey, heterogeneous, damp, loose, fine sand, inclusions of bricks, sandstone cobbles, terracotta	TP21_0.2-0.3	ACM observed
	0.5						
		0.50		Fill	FILL - SAND, grey, heterogeneous, damp, loose, fine sand, inclusions of bricks, tiles, terracotta tile, ACM fragments	TP21_0.5-0.6	ACM observed
		0.70			Test Pit TP21 terminated at 0.7m		Test pit terminated due to refusal on sandstone
	1.0						
	1.5						
	2.0						
	2.5						

TP22

Project Number: 54640
Client: Randwick City Council
Project Name: Detailed Asbestos Assessment
Site Address: Jack Vanny Reserve, Marine Parade, Maroubra NSW

Date: 16/02/2018
Logged By: MC/JS
Contractor: ANC Foster
Total Hole Depth (mbgs): 1.5
Pit Dimension (m3):

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

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit	0.0			Fill	FILL - SAND, brown, heterogeneous, dry, loose, inclusions of bricks, concrete, terracotta, ACM fragments, metal sheeting, plastic, glass (20%)	TP22_0.0-0.1	ACM observed, QA03-16022018 and QC03-16022018 samples taken
						TP22_0.2-0.3	ACM observed
	0.5	0.50		Fill	FILL - SAND, brown, heterogeneous, dry, loose, inclusions of bricks, concrete, terracotta, ACM fragments, metal sheeting, plastic, glass, brick wall boulders (30%)	TP22_0.5-0.6	ACM observed
	1.0					TP22_1.0-1.1	
	1.5	1.50			Test Pit TP22 terminated at 1.5m		Test pit terminated due to hole collapse in natural materials
	2.0						
	2.5						

Attachment 5 – Asbestos in Soil Results Summary Table

Sample ID and depth of sample (m bgs)	Test pit Location	Date of sample collection	Sample Type	Result	Friable or Non-friable Asbestos?
SS01	SS01	16/02/2018	Soil	No asbestos detected	-
SS02	SS02	16/02/2018	Soil	No asbestos detected	-
SS03	SS03	16/02/2018	Soil	No asbestos detected	-
SS04	SS04	16/02/2018	Soil	No asbestos detected	-
SS05	SS05	16/02/2018	Soil	No asbestos detected	-
TP01_0-0.1	TP01	16/02/2018	Soil	No asbestos detected	-
TP01_0.2-0.3	TP01	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA -0.00010 % w/w)	Friable
TP01_0.5-0.6	TP01	16/02/2018	Soil	No asbestos detected	-
TP02_0-0.1	TP01	16/02/2018	Soil	No asbestos detected	-
TP02_0.2-0.3	TP02	16/02/2018	Soil	No asbestos detected	-
TP02_0.5-0.6	TP02	16/02/2018	Soil	No asbestos detected	-
TP02_0.9-1.0	TP02	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00015 % w/w)	Friable
TP03_0-0.1	TP03	16/02/2018	Soil	No asbestos detected	-
TP03_0.2-0.3	TP03	16/02/2018	Soil	**Asbestos detected FA – 0.0036% w/w**	Friable
TP03_0.5-0.6	TP03	16/02/2018	Soil	No asbestos detected	-
TP04_0-0.1	TP04	16/02/2018	Soil	No asbestos detected	-
TP04_0.2-0.3	TP04	16/02/2018	Soil	No asbestos detected	-
TP04_0.5-0.6	TP04	16/02/2018	Soil	**Asbestos detected ACM – 0.025% w/w**	Non-friable
TP04_1.0-1.1	TP04	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.000077% w/w)	Friable
TP05_0-0.1	TP05	16/02/2018	Soil	No asbestos detected at LOR 0.01 % w/w (ACM - 0.0067% w/w)	Non-friable
TP05_0.2-0.3	TP05	16/02/2018	Soil	No asbestos detected	-
TP05_0.5-0.6	TP05	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00020% w/w)	Friable
TP05_1.0-1.1	TP05	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA and AF - 0.00060% w/w)	Friable
TP06_0-0.1	TP06	16/02/2018	Soil	No asbestos detected	-
TP06_0.2-0.3	TP06	16/02/2018	Soil	No asbestos detected	-
TP07_0-0.1	TP07	16/02/2018	Soil	No asbestos detected	-
TP07_0.2-0.3	TP07	16/02/2018	Soil	No asbestos detected	-
TP07_0.5-0.6	TP07	16/02/2018	Soil	**Asbestos detected FA – 0.0081% w/w**	Friable
TP07_1.0-1.1	TP07	16/02/2018	Soil	No asbestos detected	-
TP08_0-0.1	TP08	16/02/2018	Soil	No asbestos detected	-
TP08_0.2-0.3	TP08	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA -0.00045% w/w)	Friable
TP08_0.5-0.6	TP08	16/02/2018	Soil	No asbestos detected	-
TP08_1.0-1.1	TP08	16/02/2018	Soil	No asbestos detected	-
TP09_0-0.1	TP09	16/02/2018	Soil	No asbestos detected	-
TP09_0.2-0.3	TP09	16/02/2018	Soil	No asbestos detected	-
TP09_0.5-0.6	TP09	16/02/2018	Soil	**Asbestos detected FA and AF – 0.0065% w/w**	Friable
TP09_1.0-1.1	TP09	16/02/2018	Soil	No asbestos detected	-
TP09_1.5-1.6	TP09	16/02/2018	Soil	No asbestos detected at LOR 0.01 % w/w (ACM - 0.0071% w/w)	Non-friable
TP10_0-0.1	TP10	16/02/2018	Soil	No asbestos detected	-
TP10_0.2-0.3	TP10	16/02/2018	Soil	**Asbestos detected FA and AF – 0.0016% w/w**	Friable
TP10_0.5-0.6	TP10	16/02/2018	Soil	No asbestos detected	N/A
TP10_1.0-1.1	TP10	16/02/2018	Soil	**Asbestos detected ACM – 0.067% w/w**	Non-friable
TP11_0-0.1	TP11	16/02/2018	Soil	No asbestos detected	-
TP11_0.2-0.3	TP11	16/02/2018	Soil	No asbestos detected	-
TP11_0.5-0.6	TP11	16/02/2018	Soil	No asbestos detected	-
TP12_0-0.1	TP12	16/02/2018	Soil	No asbestos detected	-
TP12_0.2-0.3	TP12	16/02/2018	Soil	No asbestos detected	-
TP12_0.5-0.6	TP12	16/02/2018	Soil	No asbestos detected	-
TP13_0-0.1	TP13	16/02/2018	Soil	No asbestos detected	-
TP13_0.2-0.3	TP13	16/02/2018	Soil	No asbestos detected	-
TP13_0.5-0.6	TP13	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (AF - 0.000061% w/w)	Friable
TP13_0.9-1.0	TP13	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00082% w/w)	Friable
TP14_0-0.1	TP14	16/02/2018	Soil	No asbestos detected	-
TP14_0.2-0.3	TP14	16/02/2018	Soil	No asbestos detected	-
TP14_0.5-0.6	TP14	16/02/2018	Soil	**Asbestos detected AF – 0.0025% w/w ACM – 0.032% w/w**	Friable

Sample ID and depth of sample (m bgs)	Test pit Location	Date of sample collection	Sample Type	Result	Friable or Non-friable Asbestos?
TP14_1.0-1.1	TP14	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00055% w/w)	Friable
TP15_0-0.1	TP15	16/02/2018	Soil	**Asbestos detected** **ACM – 0.020% w/w**	Non-friable
TP15_0.2-0.3	TP15	16/02/2018	Soil	**Asbestos detected** **AF – 0.0029% w/w**	Friable
TP15_0.5-0.6	TP15	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA and AF - 0.00010% w/w) No asbestos detected at LOR 0.01 % w/w (ACM - 0.0022% w/w)	Friable
TP15_1.0-1.1	TP15	16/02/2018	Soil	No asbestos detected	-
TP16_0-0.1	TP16	16/02/2018	Soil	**Asbestos detected** **ACM – 0.20% w/w**	Non-friable
TP16_0.2-0.3	TP16	16/02/2018	Soil	**Asbestos detected** **ACM – 0.060% w/w**	Non-friable
TP17_0-0.1	TP17	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (AF - 0.00014% w/w)	Friable
TP17_0.2-0.3	TP17	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00015% w/w)	Friable
TP17_0.4-0.5	TP17	16/02/2018	Soil	**Asbestos detected** **FA – 0.0018% w/w**	Friable
TP18_0-0.1	TP18	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (AF - 0.00022% w/w)	Friable
TP18_0.2-0.3	TP18	16/02/2018	Soil	**Asbestos detected** **ACM – 0.024% w/w** FA and AF detected below LOR of 0.001 % w/w (FA and AF - 0.00063% w/w)	Non-friable
TP18_0.4-0.5	TP18	16/02/2018	Soil	No asbestos detected	-
TP19_0-0.1	TP19	16/02/2018	Soil	**Asbestos detected** **AF – 0.0018% w/w**	Friable
TP19_0.2-0.3	TP19	16/02/2018	Soil	No asbestos detected	-
TP20_0-0.1	TP20	16/02/2018	Soil	**Asbestos detected** **FA and AF – 0.050% w/w** ACM detected below LOR of 0.01 % w/w (ACM - 0.0043% w/w)	Friable
TP20_0.2-0.3	TP20	16/02/2018	Soil	No asbestos detected	-
TP20_0.5-0.6	TP20	16/02/2018	Soil	No asbestos detected	-
TP21_0-0.1	TP21	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00052% w/w)	Friable
TP21_0.2-0.3	TP21	16/02/2018	Soil	**Asbestos detected** **ACM – 0.068% w/w**	Non-friable
TP21_0.5-0.6	TP21	16/02/2018	Soil	No asbestos detected	-
TP22_0-0.1	TP22	16/02/2018	Soil	No asbestos detected	-
TP22_0.2-0.3	TP22	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA - 0.00086% w/w)	Friable
TP22_0.5-0.6	TP22	16/02/2018	Soil	No asbestos detected	-
TP22_1.0-1.1	TP22	16/02/2018	Soil	No asbestos detected at LOR 0.001 % w/w (FA and AF - 0.00027% w/w)	Friable
QC16022018-1 (collected at TP03_0-0.1)	TP03	16/02/2018	Soil	No asbestos detected	-
QA16022018-1 (collected at TP03_0-0.1	TP03	16/02/2018	Soil	No asbestos detected	-
QC02-16022018 (collected at TP09_0.2-0.3)	TP09	16/02/2018	Soil	**Asbestos detected** **ACM – 0.062% w/w**	Non-friable
QA02-16022018 (collected at TP09_0.2-0.3)	TP09	16/02/2018	Soil	No asbestos detected	-
QC03-16022018 (collected at TP22_0-0.1)	TP22	16/02/2018	Soil	No asbestos detected	-
QA03-16022018 (collected at TP22_0-0.1)	TP22	16/02/2018	Soil	No asbestos detected	-
QC16022018-4 (collected at SS02)	SS02	16/02/2018	Soil	No asbestos detected	-
QA16022018-4 (collected at SS02)	SS02	16/02/2018	Soil	No asbestos detected	-
TP01_0.2-0.3-MAT	TP01	16/02/2018	Material	No asbestos detected	-
MAT-02	Adjacent TP20	16/20/2018	Material	Chrysotile, Amosite and Crocidolite asbestos detected	Friable

Attachment 6 – Laboratory Results and Chain of Custody Documentation

eurofins | mgt

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

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

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

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

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

Sample Receipt Advice

Company name:	**JBS & G Australia (NSW) P/L**
Contact name:	Michael Samuel
Project name:	MAROUBRA
Project ID:	54640
COC number:	Not provided
Turn around time:	6 Day
Date/Time received:	Feb 19, 2018 12:40 PM
Eurofins | mgt reference:	**585454**

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 : 25 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.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

2 bags received for sample "TP12_0.5-0.6", extra bag kept 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 Michael Samuel - msamuel@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (NSW) P/L email address.

014262

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: Jacaranda Maroubra	SAMPLERS: JS/MC
DATE NEEDED BY: STD T/A	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) msamuel@jbsg.com.au; (3) JStaehli@jbsg.com.au mcatlina@jbsg

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	ASBESTOS 500g	010HT	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: 485454
SS01	soil	16/2/18	-	BAG		X			X	
SS02	↓	↓		↓		X			X	
SS03						X			X	
SS04						X			X	
SS05						X			X	
TP01_0-0.1						X			X	
↓ _0.2-0.3	↓					X			X	
_0.2-0.3-MAT	material					X		X		
TP01_0.5-0.6	soil					X			X	
TP02_0-0.1						X			X	
↓ _0.2-0.3						X			X	
_0.5-0.6						X			X	
↓ _0.9-1.0						X			X	
TP03_0-0.1						X			X	
↓ _0.2-0.3						X			X	
_0.5-0.6						X			X	
↓ _0.9-1.0							X			
TP04_0-0.1						X			X	
↓ _0.2-0.3	↓	↓		↓		X			X	

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 19/2/18	CONSIGNMENT NOTE NO.	NAME: DATE: 19/2	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF: 12:40pm	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

014263

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: Maroubra	SAMPLERS: JS/MC
DATE NEEDED BY: STD TAT	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) msamuel@jbsg.com.au; (3) JStaehli@jbsg.com.au mcathna.

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	HOLD	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: 455454
TP04_0.5-0.6	soil	16/2/18	-	BAG		X			X	
↓ _1.0-1.1	↓	↓		↓		X			X	
TP05_0-0.1						X			X	
_0.2-0.3						X			X	
_0.5-0.6						X			X	
_1.0-1.1						X			X	
TP06_0-0.1						X			X	
↓ _0.2-0.3						X			X	
TP07_0-0.1						X			X	
_0.2-0.3						X			X	
_0.5-0.6						X			X	
_1.0-1.1						X			X	
TP08_0-0.1						X			X	
_0.2-0.3						X			X	
_0.5-0.6						X			X	
_1.0-1.1						X			X	
_1.5-1.6							X			
TP09_0-0.1						X			X	
↓ _0.2-0.3	↓	↓		↓		X			X	

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 16/2/18	CONSIGNMENT NOTE NO.	NAME: LONG	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: 19/2	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

014264

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: Marouba	SAMPLERS: JS/MC
DATE NEEDED BY: STD TAT	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) msamuel@jbsg.com.au; (3) jstaehli@jbsg.com.au mcaffin

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	HOLD	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: E55454
TP09_0.5-0.6	Soil	16/2/18		BAG		X			X	
_1.0-1.1										
_1.5-1.6										
TP10_0-0.1										
_0.2-0.3										
_0.5-0.6										
_1.0-1.1										
TP10-BS01							X			
TP11_0-0.1						X			X	
_0.2-0.3										
_0.5-0.6										
TP12_0-0.1										
_0.2-0.3										
_0.5-0.6										
TP13_0-0.1										
_0.2-0.3										
_0.5-0.6										
_0.9-1.0										
TP14_0-0.1										

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 19/2/18	CONSIGNMENT NOTE NO.	NAME: DATE: 19/2	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

014265

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: Maroubra	SAMPLERS: JS/MC
DATE NEEDED BY: STD TAT	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) msamuel@jbsg.com.au; (3) JStaehli@jbsg.com.au mCattlin

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	ASBESTOS	HOLD	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: 485454
TP14_0.2-0.3	Soil	16/2/18		BAG		X			X	
↓ _0.5-0.6	↓	↓		↓		↓			↓	
_1.0-1.1										
TP15_0-0.1										
_0.2-0.3										
_0.5-0.6										
_1.0-1.1										
TP16_0-0.1										
↓ _0.2-0.3										
TP17_0-0.1										
↓ _0.2-0.3										
_0.4-0.5										
TP18_0-0.1										
↓ _0.2-0.3										
_0.4-0.5										
TP19_0-0.1										
↓ _0.2-0.3										
TP20_0-0.1										
↓ _0.2-0.3	↓	↓		↓		↓			↓	

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 16/2/18	CONSIGNMENT NOTE NO.	NAME: DATE: 16/2	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF: 2:40pm	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

014266

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: maroubra	SAMPLERS: JJ
DATE NEEDED BY: STD T/A.	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) msamuel@jbsg.com.au; (3) JStaehli@jbsg.com.au mcattlin@jb..

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	HOLD	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: E85454
TP20_0.5-0.6	Soil	16/2/18	-	BAG		X			X	
TP21_0-0.1	↓	↓		↓		↓			↓	
_0.2-0.3										
_0.5-0.6										
TP22_0-0.1										
_0.2-0.3										
_0.5-0.6										
_1.0-1.1										
QC16022018-1										
QC02-16022018										
QC03-16022018										
QC16022018-4	↓					↓			↓	
MAT-02	material	↓	↓	↓		X		X		

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 19/2/18	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF: UPS Depot (19/2	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

Certificate of Analysis

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

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

Attention:	Michael Samuel
Report	585454-AID
Project Name	MAROUBRA
Project ID	54640
Received Date	Feb 19, 2018
Date Reported	Feb 27, 2018

Methodology:

Asbestos Fibre Identification	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. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter 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) is employed. *NOTE: 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 for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name MAROUBRA
Project ID 54640
Date Sampled Feb 16, 2018
Report 585454-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
SS01	18-Fe21338	Feb 16, 2018	Approximate Sample 570g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
SS02	18-Fe21339	Feb 16, 2018	Approximate Sample 627g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
SS03	18-Fe21340	Feb 16, 2018	Approximate Sample 543g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
SS04	18-Fe21341	Feb 16, 2018	Approximate Sample 737g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
SS05	18-Fe21342	Feb 16, 2018	Approximate Sample 658g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP01_0-0.1	18-Fe21343	Feb 16, 2018	Approximate Sample 720g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP01_0.2-0.3	18-Fe21344	Feb 16, 2018	Approximate Sample 800g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	AF: Amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.00080g* Estimated asbestos content in AF = 0.00080g* Total estimated asbestos concentration in AF = 0.00010% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP01_0.2-0.3-MAT	18-Fe21345	Feb 16, 2018	Approximate Sample 15g / 60x50x12mm Sample consisted of: Light brown powdery insulation-like material	No asbestos detected. Organic fibre detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP01_0.5-0.6	18-Fe21346	Feb 16, 2018	Approximate Sample 833g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP02_0-0.1	18-Fe21347	Feb 16, 2018	Approximate Sample 601g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP02_0.2-0.3	18-Fe21348	Feb 16, 2018	Approximate Sample 811g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP02_0.5-0.6	18-Fe21349	Feb 16, 2018	Approximate Sample 863g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP2_0.9-1.0	18-Fe21350	Feb 16, 2018	Approximate Sample 797g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	AF: Amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0012g* Estimated asbestos content in AF = 0.0012g* Total estimated asbestos concentration in AF = 0.00015% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP03_0-0.1	18-Fe21351	Feb 16, 2018	Approximate Sample 653g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP03_0.2-0.3	18-Fe21352	Feb 16, 2018	Approximate Sample 879g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Chrysotile asbestos detected in insulation-like material. Approximate raw weight of FA = 0.040g Estimated asbestos content in FA = 0.032g* Total estimated asbestos concentration in FA = 0.0036% w/w* Organic fibre detected. No respirable fibres detected.
TP03_0.5-0.6	18-Fe21353	Feb 16, 2018	Approximate Sample 818g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP04_0-0.1	18-Fe21354	Feb 16, 2018	Approximate Sample 814g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP04_0.2-0.3	18-Fe21355	Feb 16, 2018	Approximate Sample 876g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP4_0.5-0.6	18-Fe21356	Feb 16, 2018	Approximate Sample 892g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	ACM: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 1.1g Total estimated asbestos content in ACM = 0.23g* Total estimated asbestos concentration in ACM = 0.025% w/w* Organic fibre detected. No respirable fibres detected.
TP4_1.0-1.1	18-Fe21357	Feb 16, 2018	Approximate Sample 829g Sample consisted of: Brown coarse grain sandy soil, rocks and debris	FA: Chrysotile and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.00080g Estimated asbestos content in FA = 0.00064g* Total estimated asbestos concentration in FA = 0.000077% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP5_0-0.1	18-Fe21358	Feb 16, 2018	Approximate Sample 492g Sample consisted of: Brown coarse grain soil and debris	ACM: Chrysotile, amosite and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 0.22g Total estimated asbestos content in ACM = 0.033g* Total estimated asbestos concentration in ACM = 0.0067% w/w* No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
TP5_0.2-0.3	18-Fe21359	Feb 16, 2018	Approximate Sample 799g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP5_0.5-0.6	18-Fe21360	Feb 16, 2018	Approximate Sample 820g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.0028g Estimated asbestos content in FA = 0.0017g* Total estimated asbestos concentration in FA = 0.00020% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP5_1.0-1.1	18-Fe21361	Feb 16, 2018	Approximate Sample 829g Sample consisted of: Brown coarse grain sandy soil, rocks and debris	FA: Chrysotile asbestos detected in weathered bitumen. Approximate Raw weight of FA = 0.024g Estimated asbestos content in FA = 0.0036g* AF: Chrysotile asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0014g* Estimated asbestos content in AF = 0.0014g* Total estimated asbestos content in FA and AF = 0.0050g* Total estimated asbestos concentration in FA and AF = 0.00060% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP6-0-0.1	18-Fe21362	Feb 16, 2018	Approximate Sample 876g Sample consisted of: Brown coarse grain sandy soil, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP6-0.2-0.3	18-Fe21363	Feb 16, 2018	Approximate Sample 830g Sample consisted of: Brown fine grain sandy soil	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP7_0-0.1	18-Fe21364	Feb 16, 2018	Approximate Sample 791g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP7_0.2-0.3	18-Fe21365	Feb 16, 2018	Approximate Sample 972g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP7_0.5-0.6	18-Fe21366	Feb 16, 2018	Approximate Sample 859g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Amosite asbestos detected in insulation-like material. Approximate raw weight of FA = 0.14g Estimated asbestos content in FA = 0.070g* Total estimated asbestos concentration in FA = 0.0081% w/w* Organic fibre detected. No respirable fibres detected.
TP7_1.0-1.1	18-Fe21367	Feb 16, 2018	Approximate Sample 825g Sample consisted of: Brown fine grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP08_0-0.1	18-Fe21368	Feb 16, 2018	Approximate Sample 898g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP08_0.2-0.3	18-Fe21369	Feb 16, 2018	Approximate Sample 963g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.011g Estimated asbestos content in FA = 0.0043g* Total estimated asbestos concentration in FA = 0.00045% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP08_0.5-0.6	18-Fe21370	Feb 16, 2018	Approximate Sample 984g Sample consisted of: Brown fine 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.
TP08_1.0-1.1	18-Fe21371	Feb 16, 2018	Approximate Sample 894g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP09_0-0.1	18-Fe21372	Feb 16, 2018	Approximate Sample 780g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP09_0.2-0.3	18-Fe21373	Feb 16, 2018	Approximate Sample 889g Sample consisted of: Brown fine grain sandy soil	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP09_0.5-0.6	18-Fe21374	Feb 16, 2018	Approximate Sample 945g Sample consisted of: Brown fine grain sandy soil and organic debris	FA: Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.16g Estimated asbestos content in FA = 0.057g* AF: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of AF = 0.037g* Estimated asbestos content in AF = 0.0037g* Total estimated asbestos content in FA and AF = 0.061g* Total estimated asbestos concentration in FA and AF = 0.0065% w/w* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP09_1.0-1.1	18-Fe21375	Feb 16, 2018	Approximate Sample 973g Sample consisted of: Brown fine grain sandy soil	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP09_1.5-1.6	18-Fe21376	Feb 16, 2018	Approximate Sample 931g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	ACM: Chrysotile, amosite and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 0.33g Total estimated asbestos content in ACM = 0.066g* Total estimated asbestos concentration in ACM = 0.0071% w/w* No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
TP10_0-0.1	18-Fe21377	Feb 16, 2018	Approximate Sample 798g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP10_0.2-0.3	18-Fe21378	Feb 16, 2018	Approximate Sample 839g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.040g Estimated asbestos content in FA = 0.012g* AF: Chrysotile and amosite asbestos detected in fibre cement fragments. Chrysotile asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0053g* Estimated asbestos content in AF = 0.0016g* Total estimated asbestos content in FA and AF = 0.014g* Total estimated asbestos concentration in FA and AF = 0.0016% w/w* Organic fibre detected. No respirable fibres detected.
TP10_0.5-0.6	18-Fe21379	Feb 16, 2018	Approximate Sample 947g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP10_1.0-1.1	18-Fe21380	Feb 16, 2018	Approximate Sample 875g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	ACM: Chrysotile and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 7.3g Total estimated asbestos content in ACM = 0.59g* Total estimated asbestos concentration in ACM = 0.067% w/w* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP11_0-0.1	18-Fe21381	Feb 16, 2018	Approximate Sample 684g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP11_0.2-0.3	18-Fe21382	Feb 16, 2018	Approximate Sample 925g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP11_0.5-0.6	18-Fe21383	Feb 16, 2018	Approximate Sample 927g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP12_0-0.1	18-Fe21384	Feb 16, 2018	Approximate Sample 1019g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP12_0.2-0.3	18-Fe21385	Feb 16, 2018	Approximate Sample 1050g Sample consisted of: Brown fine grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP12_0.5-0.6	18-Fe21386	Feb 16, 2018	Approximate Sample 987g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP13_0-0.1	18-Fe21387	Feb 16, 2018	Approximate Sample 879g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP13_0.2-0.3	18-Fe21388	Feb 16, 2018	Approximate Sample 944g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP13_0.5-0.6	18-Fe21389	Feb 16, 2018	Approximate Sample 987g Sample consisted of: Brown fine grain sandy soil	AF: Amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.00060g* Estimated asbestos content in AF = 0.00060g* Total estimated asbestos concentration in AF = 0.000061% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP13_0.9-1.0	18-Fe21390	Feb 16, 2018	Approximate Sample 883 Sample consisted of: Brown fine grain sandy soil, rocks and debris	FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.018g Estimated asbestos content in FA = 0.0072g* Total estimated asbestos concentration in FA = 0.00082% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP14_0-0.1	18-Fe21391	Feb 16, 2018	Approximate Sample 992g Sample consisted of: Brown fine grain sandy soil, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP14_0.2-0.3	18-Fe21392	Feb 16, 2018	Approximate Sample 993g Sample consisted of: Brown fine grain sandy soil	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP14_0.5-0.6	18-Fe21393	Feb 16, 2018	Approximate Sample 1036g Sample consisted of: Brown fine grain sandy soil, rocks and debris	ACM: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 3.0g Total estimated asbestos content in ACM = 0.33g* Total estimated asbestos concentration in ACM = 0.032% w/w* AF: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of AF = 0.23g Estimated asbestos content in AF = 0.026g* Total estimated asbestos concentration in AF = 0.0025%w/w.* Synthetic mineral fibre detected. Organic fibre detected No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP14_1.0-1.1	18-Fe21394	Feb 16, 2018	Approximate Sample 956g Sample consisted of: Brown fine grain sandy soil and rocks	FA: Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.018g Estimated asbestos content in FA = 0.0053g* Total estimated asbestos concentration in FA = 0.00055% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP15_0-0.1	18-Fe21395	Feb 16, 2018	Approximate Sample 861g Sample consisted of: Brown fine grain sandy soil, rocks and debris	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.2g Total estimated asbestos content in ACM = 0.17g* Total estimated asbestos concentration in ACM = 0.020% w/w* Organic fibre detected. No respirable fibres detected.
TP15_0.2-0.3	18-Fe21396	Feb 16, 2018	Approximate Sample 848g Sample consisted of: Brown fine grain sandy soil, rocks and debris	FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.061g Estimated asbestos content in FA = 0.024g* Total estimated asbestos concentration in FA = 0.0029% w/w* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP15_0.5-0.6	18-Fe21397	Feb 16, 2018	Approximate Sample 917g Sample consisted of: Brown fine grain sandy soil and debris	ACM: Chrysotile and amosite asbestos detected detected in fibre cement fragments. Approximate raw weight of ACM = 0.14g Total estimated asbestos content in ACM = 0.020g* Total estimated asbestos concentration in ACM = 0.0022% w/w* No asbestos detected at the reporting limit of 0.01% w/w (ACM).* FA: Chrysotile and amosite asbestos detected detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.0021g Estimated asbestos content in FA = 0.00063g* AF: Chrysotile asbestos detected detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.00030g* Estimated asbestos content in AF = 0.00029g* Total estimated asbestos content in FA and AF = 0.00092g* Total estimated asbestos concentration in FA and AF = 0.00010% w/w* No asbestos detected at the reporting limit of 0.001% w/w (FA and AF).* Organic fibre detected. No respirable fibres detected.
TP15_1.0-1.1	18-Fe21398	Feb 16, 2018	Approximate Sample 786g Sample consisted of: Brown fine grain sandy soil, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP16_0-0.1	18-Fe21399	Feb 16, 2018	Approximate Sample 796g Sample consisted of: Brown fine grain sandy soil and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 10g Total estimated asbestos content in ACM = 1.6g* Total estimated asbestos concentration in ACM = 0.20% w/w* Organic fibre detected. No respirable fibres detected.
TP16_0.2-0.3	18-Fe21400	Feb 16, 2018	Approximate Sample 728g Sample consisted of: Brown fine grain sandy soil and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.9g Total estimated asbestos content in ACM = 0.44g* Total estimated asbestos concentration in ACM = 0.060% w/w* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP17_0-0.1	18-Fe21401	Feb 16, 2018	Approximate Sample 917g Sample consisted of: Brown fine grain sandy soil, rocks and debris	AF: Chrysotile and crocidolite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0013g* Estimated asbestos content in AF = 0.0013g* Total estimated asbestos concentration in AF = 0.00014% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP17_0.2-0.3	18-Fe21402	Feb 16, 2018	Approximate Sample 882g Sample consisted of: Brown coarse grain sandy soil, rocks and debris	FA: Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.0034g Estimated asbestos content in FA = 0.0014g* Total estimated asbestos concentration in FA = 0.00015% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP17_0.4-0.5	18-Fe21403	Feb 16, 2018	Approximate Sample 777g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.024g Estimated asbestos content in FA = 0.014g* Total estimated asbestos concentration in FA = 0.0018% w/w* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP18_0-0.1	18-Fe21404	Feb 16, 2018	Approximate Sample 689g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	AF: Amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0015g* Estimated asbestos content in AF = 0.0015g* Total estimated asbestos concentration in AF = 0.00022% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP18_0.2-0.3	18-Fe21405	Feb 16, 2018	Approximate Sample 723g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	ACM: Chrysotile and amosite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.0g Total estimated asbestos content in ACM = 0.18g* Total estimated asbestos concentration in ACM = 0.024% w/w* FA: Chrysotile and amosite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.0084g Estimated asbestos content in FA = 0.0034g* AF: Chrysotile and amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0012g* Estimated asbestos content in AF = 0.0012g* Total estimated asbestos content in FA and AF = 0.0046g* Total estimated asbestos concentration in FA and AF = 0.00063% w/w* No asbestos detected at the reporting limit of 0.001% w/w (FA and AF).* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
TP18_0.4-0.5	18-Fe21406	Feb 16, 2018	Approximate Sample 667g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP19_0-0.1	18-Fe21407	Feb 16, 2018	Approximate Sample 968g Sample consisted of: Brown fine grain soil and rocks	AF: Chrysotile asbestos detected in fibre cement fragments. Chrysotile and crocidolite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.12g* Estimated asbestos content in AF = 0.018g* Total estimated asbestos concentration in AF = 0.0018% w/w* Organic fibre detected. No respirable fibres detected.
TP19_0.2-0.3	18-Fe21408	Feb 16, 2018	Approximate Sample 887g Sample consisted of: Brown fine grain sandy soil, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP20_0-0.1	18-Fe21409	Feb 16, 2018	Approximate Sample 1126g Sample consisted of: Brown fine grain sandy soil, rocks and debris	ACM: Chrysotile, amosite and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 0.45g Total estimated asbestos content in ACM = 0.049g* Total estimated asbestos concentration in ACM = 0.0043% w/w* No asbestos detected at the reporting limit of 0.01% w/w (ACM).* FA: Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 1.4g Estimated asbestos content in FA = 0.56g* AF: Chrysotile and amosite asbestos detected in the form of loose fibre bundles. Approximate raw weight of AF = 0.0028g* Estimated asbestos content in AF = 0.0028g* Total estimated asbestos content in FA and AF = 0.57g* Total estimated asbestos concentration in FA and AF = 0.050% w/w* Organic fibre detected. No respirable fibres detected.
TP20_0.2-0.3	18-Fe21410	Feb 16, 2018	Approximate Sample 945g Sample consisted of: Brown coarse grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP20_0.5-0.6	18-Fe21411	Feb 16, 2018	Approximate Sample 803g Sample consisted of: Brown fine grain sandy soil, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP21_0-0.1	18-Fe21412	Feb 16, 2018	Approximate Sample 745g Sample consisted of: Brown fine grain sandy soil, rocks and debris	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.011g Estimated asbestos content in FA = 0.0039g* Total estimated asbestos concentration in FA = 0.00052% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP21_0.2-0.3	18-Fe21413	Feb 16, 2018	Approximate Sample 841g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.8g Total estimated asbestos content in ACM = 0.57g* Total estimated asbestos concentration in ACM = 0.068% w/w* Organic fibre detected. No respirable fibres detected.
TP21_0.5-0.6	18-Fe21414	Feb 16, 2018	Approximate Sample 917g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP22_0-0.1	18-Fe21415	Feb 16, 2018	Approximate Sample 841g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP22_0.2-0.3	18-Fe21416	Feb 16, 2018	Approximate Sample 949g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.020g Estimated asbestos content in FA = 0.0081g* Total estimated asbestos concentration in FA = 0.00086% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP22_0.5-0.6	18-Fe21417	Feb 16, 2018	Approximate Sample 851g Sample consisted of: Brown fine grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP22_1.0-1.1	18-Fe21418	Feb 16, 2018	Approximate Sample 809g Sample consisted of: Brown fine grain sandy soil and rocks	FA: Chrysotile asbestos detected in weathered fibre cement fragments. Approximate raw weight of FA = 0.0059g Estimated asbestos content in FA = 0.0018g* AF: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of AF = 0.0030g Estimated asbestos content in AF = 0.00045g* Total estimated asbestos content in FA and AF = 0.0022g Total estimated asbestos concentration in FA and AF = 0.00027% w/w* No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
QC16022018-1	18-Fe21419	Feb 16, 2018	Approximate Sample 805g Sample consisted of: Brown fine grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
QC02-16022018	18-Fe21420	Feb 16, 2018	Approximate Sample 928g Sample consisted of: Brown fine grain sandy soil, rocks and organic debris	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 3.9g Total estimated asbestos content in ACM = 0.58g* Total estimated asbestos concentration in ACM = 0.062% w/w* Organic fibre detected. No respirable fibres detected.
QC03-16022018	18-Fe21421	Feb 16, 2018	Approximate Sample 930g Sample consisted of: Brown fine grain sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
QC16022018-4	18-Fe21422	Feb 16, 2018	Approximate Sample 653g Sample consisted of: Brown fine grain sandy soil and organic debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
MAT-02	18-Fe21423	Feb 16, 2018	Approximate Sample 13g / 110x50x5mm Sample consisted of: Grey compressed fibre cement material	Chrysotile, amosite and crocidolite asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Feb 19, 2018	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Feb 19, 2018	Indefinite

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Site # 23736

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

Project Name: MAROUBRA
Project ID: 54640

Order No.:
Report #: 585454
Phone: 02 8245 0300
Fax:

Received: Feb 19, 2018 12:40 PM
Due: Feb 27, 2018
Priority: 6 Day
Contact Name: Michael Samuel

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SS01	Feb 16, 2018		Soil	S18-Fe21338	X		
2	SS02	Feb 16, 2018		Soil	S18-Fe21339	X		
3	SS03	Feb 16, 2018		Soil	S18-Fe21340	X		
4	SS04	Feb 16, 2018		Soil	S18-Fe21341	X		
5	SS05	Feb 16, 2018		Soil	S18-Fe21342	X		
6	TP01_0-0.1	Feb 16, 2018		Soil	S18-Fe21343	X		
7	TP01_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21344	X		
8	TP01_0.2-0.3-MAT	Feb 16, 2018		Building Materials	S18-Fe21345		X	
9	TP01_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21346	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
10	TP02_0-0.1	Feb 16, 2018		Soil	S18-Fe21347	X		
11	TP02_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21348	X		
12	TP02_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21349	X		
13	TP2_0.9-1.0	Feb 16, 2018		Soil	S18-Fe21350	X		
14	TP03_0-0.1	Feb 16, 2018		Soil	S18-Fe21351	X		
15	TP03_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21352	X		
16	TP03_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21353	X		
17	TP04_0-0.1	Feb 16, 2018		Soil	S18-Fe21354	X		
18	TP04_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21355	X		
19	TP4_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21356	X		
20	TP4_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21357	X		
21	TP5_0-0.1	Feb 16, 2018		Soil	S18-Fe21358	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
22	TP5_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21359	X		
23	TP5_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21360	X		
24	TP5_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21361	X		
25	TP6-0-0.1	Feb 16, 2018		Soil	S18-Fe21362	X		
26	TP6-0.2-0.3	Feb 16, 2018		Soil	S18-Fe21363	X		
27	TP7_0-0.1	Feb 16, 2018		Soil	S18-Fe21364	X		
28	TP7_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21365	X		
29	TP7_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21366	X		
30	TP7_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21367	X		
31	TP08_0-0.1	Feb 16, 2018		Soil	S18-Fe21368	X		
32	TP08_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21369	X		
33	TP08_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21370	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
34	TP08_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21371	X		
35	TP09_0-0.1	Feb 16, 2018		Soil	S18-Fe21372	X		
36	TP09_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21373	X		
37	TP09_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21374	X		
38	TP09_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21375	X		
39	TP09_1.5-1.6	Feb 16, 2018		Soil	S18-Fe21376	X		
40	TP10_0-0.1	Feb 16, 2018		Soil	S18-Fe21377	X		
41	TP10_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21378	X		
42	TP10_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21379	X		
43	TP10_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21380	X		
44	TP11_0-0.1	Feb 16, 2018		Soil	S18-Fe21381	X		
45	TP11_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21382	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
46	TP11_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21383	X		
47	TP12_0-0.1	Feb 16, 2018		Soil	S18-Fe21384	X		
48	TP12_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21385	X		
49	TP12_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21386	X		
50	TP13_0-0.1	Feb 16, 2018		Soil	S18-Fe21387	X		
51	TP13_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21388	X		
52	TP13_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21389	X		
53	TP13_0.9-1.0	Feb 16, 2018		Soil	S18-Fe21390	X		
54	TP14_0-0.1	Feb 16, 2018		Soil	S18-Fe21391	X		
55	TP14_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21392	X		
56	TP14_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21393	X		
57	TP14_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21394	X		

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Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
58	TP15_0-0.1	Feb 16, 2018		Soil	S18-Fe21395	X		
59	TP15_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21396	X		
60	TP15_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21397	X		
61	TP15_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21398	X		
62	TP16_0-0.1	Feb 16, 2018		Soil	S18-Fe21399	X		
63	TP16_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21400	X		
64	TP17_0-0.1	Feb 16, 2018		Soil	S18-Fe21401	X		
65	TP17_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21402	X		
66	TP17_0.4-0.5	Feb 16, 2018		Soil	S18-Fe21403	X		
67	TP18_0-0.1	Feb 16, 2018		Soil	S18-Fe21404	X		
68	TP18_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21405	X		
69	TP18_0.4-0.5	Feb 16, 2018		Soil	S18-Fe21406	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
70	TP19_0-0.1	Feb 16, 2018		Soil	S18-Fe21407	X		
71	TP19_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21408	X		
72	TP20_0-0.1	Feb 16, 2018		Soil	S18-Fe21409	X		
73	TP20_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21410	X		
74	TP20_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21411	X		
75	TP21_0-0.1	Feb 16, 2018		Soil	S18-Fe21412	X		
76	TP21_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21413	X		
77	TP21_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21414	X		
78	TP22_0-0.1	Feb 16, 2018		Soil	S18-Fe21415	X		
79	TP22_0.2-0.3	Feb 16, 2018		Soil	S18-Fe21416	X		
80	TP22_0.5-0.6	Feb 16, 2018		Soil	S18-Fe21417	X		
81	TP22_1.0-1.1	Feb 16, 2018		Soil	S18-Fe21418	X		

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Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
82	QC16022018-1	Feb 16, 2018		Soil	S18-Fe21419	X		
83	QC02-16022018	Feb 16, 2018		Soil	S18-Fe21420	X		
84	QC03-16022018	Feb 16, 2018		Soil	S18-Fe21421	X		
85	QC16022018-4	Feb 16, 2018		Soil	S18-Fe21422	X		
86	MAT-02	Feb 16, 2018		Building Materials	S18-Fe21423		X	
87	TP03_0.9-1.0	Feb 16, 2018		Building Materials	S18-Fe21424			X
88	TP08_1.5-1.6	Feb 16, 2018		Building Materials	S18-Fe21425			X

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
89	TP10-BS01	Feb 16, 2018		Building Materials	S18-Fe21426			X
Test Counts						84	2	3

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

Units

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

Terms

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

Comments

Samples Fe21358 received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

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

Comments

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	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

ENVIROLAB

014267

CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 54640	LABORATORY BATCH NO.:
PROJECT NAME: maroubra	SAMPLERS: JS/mc
DATE NEEDED BY: STD T/A	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) msamuel@jbsg.com.au; (3) JStaehli@jbsg.com.au mcatlin

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

	SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
1	QA16022018-1	Soil	16/2/18		BAG		X		X	
2	QA02-16022018	↓	↓		↓		X		X	
3	QA03-16022018						X		X	
4	QA16022018-4						X		X	

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 185810
Date Received: 19/2/18
Time Received: 16:15
Received by: MT
Temp: Cool/Ambient 26.4
Cooling: Ice/Icepack
Security: Intact/Broken/None

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Jessica DATE: 16/2/18	CONSIGNMENT NOTE NO.	NAME: MT DATE: 19/2/18 16:15	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF: ML	COOLER TEMP 26.4 ..... 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

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

CERTIFICATE OF ANALYSIS 185510

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	M. Cattlin, Michael Samuel, J Staehli
Address	Level 1, 50 Margaret St, Sydney, NSW, 2000

Sample Details

Your Reference	**54640, Maroubra**
Number of Samples	4 Soil
Date samples received	19/02/2018
Date completed instructions received	19/02/2018

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

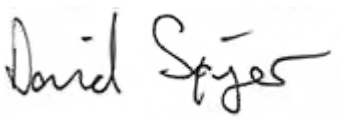
Date results requested by	26/02/2018
Date of Issue	23/02/2018

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

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

Asbestos Approved By
Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lulu Scott
Results Approved By
Lulu Scott, Asbestos Supervisor

Authorised By



David Springer, General Manager

Asbestos ID - soils NEPM - ASB-001					
Our Reference		185510-1	185510-2	185510-3	185510-4
Your Reference	UNITS	QA16022018-1	QA02-16022018	QA03-16022018	QA16022018-4
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	23/02/2018	23/02/2018	23/02/2018	23/02/2018
Sample mass tested	g	778.18	947.29	857.56	767.24
Sample Description	-	Brown sandy soil & debris	Brown sandy soil & debris	Brown sandy soil & debris	Brown sandy soil & debris
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–
FA and AF Estimation*	g	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

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.
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.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.

Attachment 7 – Airborne Asbestos Fibre Monitoring Report (16 February 2018)

JBS&G (54640-113966)

20 February 2018

Todd Clarke
Coordinator Projects
Randwick City Council
Via Email: todd.clarke@randwick.nsw.gov.au

AMR001 – Daily Airborne Asbestos Fibre Monitoring Report
Jack Vanny Reserve, Marine Parade, Maroubra, NSW

Dear Todd,

Please find as **Attachment 1** the daily airborne asbestos fibre monitoring report for works completed at the Jack Vanny Reserve, Marine Parade, Maroubra, NSW on **16 February 2018.**

All air monitoring was completed in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003(2005)], with NATA certification applying to all sample collection, handling and analytical procedures.

All reported results were satisfactory and below the minimum action level of less than 0.01 fibres/mL for control monitoring as outlined in:

- Work, Health and Safety (2017) Regulation; and
- Safework Australia (2016) Code of Practice – *How to Safely Remove Asbestos.*

If you have any questions regarding these results, please feel free to contact the undersigned on 02 8245 0300 or by email msamuel@jbsg.com.au.

Yours sincerely

Michael Samuel
Licensed Asbestos Assessor (LAA 000157)
JBS&G Australia Pty Ltd

Attachment 1 – Daily Airborne Asbestos Fibre Monitoring Report

Certificate of Analysis

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

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

Attention:	Michael Samuel
Report	585389-AFC
Project Name	MAROUBRA
Project ID	54640
Received Date	Feb 19, 2018
Date Reported	Feb 19, 2018

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name MAROUBRA
Project ID 54640
Date Sampled Feb 16, 2018
Report 585389-AFC

Eurofins | mgt Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
18-Fe20685	DD132281	AC020	WESTERN BOUNDARY FENCE	7:01	15:00	1.5	1.5	1/100	< 0.01
18-Fe20686	DD132324	AC006	NORTHERN BOUNDARY FENCE	7:03	15:01	1.5	1.5	0/100	< 0.01
18-Fe20687	DD132303	AC007	EASTERN BOUNDARY FENCE	7:05	15:03	1.5	1.5	1.5/100	< 0.01
18-Fe20688	DD132244	AC035	SOUTHERN BOUNDARY FENCE	7:06	15:05	1.5	1.5	1/100	< 0.01
18-Fe20689	DD132296	BLANK	BLANK	--	--	--	--	0/100	--

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-8010	Sydney	Feb 19, 2018	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Feb 19, 2018	Indefinite

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

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

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

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

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

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

Project Name: MAROUBRA
Project ID: 54640

Order No.:
Report #: 585389
Phone: 02 8245 0300
Fax:

Received: Feb 19, 2018 1:20 PM
Due: Feb 19, 2018
Priority: Same day
Contact Name: Michael Samuel

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	DD132281	Feb 16, 2018	3:00PM	Air	S18-Fe20685	X
2	DD132324	Feb 16, 2018	3:01PM	Air	S18-Fe20686	X
3	DD132303	Feb 16, 2018	3:03PM	Air	S18-Fe20687	X
4	DD132244	Feb 16, 2018	3:05PM	Air	S18-Fe20688	X
5	DD132296	Feb 16, 2018		Air	S18-Fe20689	X
Test Counts						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 Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substatntial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

Volume Measurement : Michael Cattlin, JBS & G Australia (NSW) P/L, has been trained by Eurofins | mgt and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by JBS & G Australia (NSW) P/L were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

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

Comments

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Authorised by:

Matthew Quigley 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

Attachment 8 – NSW EPA Clean Up Notice and Supplementary Documentation

Clean-Up Notice

RANDWICK CITY COUNCIL
Trading as RANDWICK CITY COUNCIL
ABN 77 362 844 121
30 Frances Street
RANDWICK NSW 2031

Attention: Todd Clarke

Notice Number	1559630
File Number	EF17/14159
Date	20-Dec-2017

Dear Mr Brownlee,

The Environment Protection Authority provided Randwick City Council with a draft Notice of Clean-Up Action for comment on 14 December 2017 in relation to the land application of waste at Lot 1 Section 3 in Deposited Plan 758649, Mistral Point, Marine Pde, Maroubra.

Comments were received from Randwick City Council on 19 December 2017.

The EPA considered your comments and has issued the Notice.

NOTICE OF CLEAN-UP ACTION

BACKGROUND

1. The Environment Protection Authority (**the EPA**) is responsible for the administration and enforcement of the *Protection of the Environment Operations Act 1997* (**the POEO Act**), including the processing, transport and disposal of waste.
2. Section 6 of the POEO Act provides that the EPA is the Appropriate Regulatory Authority (**ARA**) for activities carried on by a state or public authority.
3. Under section 91(1) of the POEO Act, the EPA as the ARA may direct a person that is reasonably suspected of causing or having caused a pollution incident to take clean-up action.
4. The POEO Act defines "waste" to include:
   a. any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or
   b. any discarded, rejected, unwanted, surplus or abandoned substance, or

c. any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or

d. any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations, or

e. any substance prescribed by the regulations to be waste.

A substance is not precluded from being waste for the purposes of the POEO Act merely because it is or may be processed, recycled, re-used or recovered.

5. "Asbestos waste" is defined for the purposes of Schedule 1 of the POEO Act to mean any waste that contains asbestos. The EPA *Waste Classification Guidelines* provides that any waste that contains asbestos is "asbestos waste" and is classified as "special waste"

6. On 11 December 2017, EPA officers conducted an inspection (**the Inspection**) of Lot 1 of Section 3 in Deposited Plan 758649, Marine Parade, Maroubra NSW 2035 (**the Premises**). The specific area inspected by EPA officers is shown on Map 1 attached (**the Impacted Area**).

7. During the Inspection, EPA officers inspected the walking trails from the top of the Impacted Area to the bottom of the Impacted Area at the rock shelf. It appears that fill material was placed in the Impacted Area some time ago, and vegetation has grown over the fill material. It is likely that the fill material was contaminated and over time, contaminants from the fill have been liberated from the fill and have been transported downhill.

8. EPA officers observed suspected asbestos fragments along most of the walking trails in the Impacted Area; within some of the vegetation in the Impacted Area; and around and on top of the rock shelf. Some of the suspected asbestos fragments appeared quite weathered. Several larger pieces of suspected asbestos piping was also found in the Impacted Area. EPA officers also observed brick, concrete, tile and glass along the pathways and in some of the vegetation in the Impacted Area. Photos have been attached to this Notice for your information.

9. EPA officers obtained 19 samples of suspected asbestos fragments from the Impacted Area. The samples were analysed with the EPA's microPHAZIR and all returned a positive reading for chrysotile asbestos. The samples have been submitted for laboratory analysis.

10. The EPA notes that the Impacted Area at the Premises can be accessed easily by the public. The EPA is concerned about the presence of multiple asbestos fragments observed during the Inspection and its impact on human health and the environment.

11. The EPA reasonably suspects that the application of asbestos waste to land at the Premises has resulted in land pollution which has occurred or is occurring as it:

a) is causing or likely to cause the degradation of the land, and

b) has potential human health and environmental impacts caused by the asbestos waste.

12. Land pollution or pollution of land means placing in or on, or otherwise introducing into or onto, the land (whether through an act or omission) any matter, whether solid, liquid or gaseous:

a) that causes or is likely to cause degradation of the land, resulting in actual or potential harm to the health or safety of human beings, animals or other terrestrial life or ecosystems, or actual or potential loss or property damage, that is not trivial, or

b) that is of a prescribed nature, description or class that does not comply with any standard prescribed in respect of that matter.

13. The EPA reasonably suspects that a land pollution incident is occurring and has occurred at the Premises. The EPA reasonably suspects that land pollution has occurred from the application of asbestos waste to land.
14. The EPA understands that Council is the occupier of the Premises and has management control of the Premises.
15. The EPA requires Council to take the clean-up actions as set out below.

DIRECTION TO TAKE CLEAN-UP ACTION

The Environment Protection Authority (EPA) directs RANDWICK CITY COUNCIL to take the following clean-up action:

A. **Immediately** secure the Impacted Area as identified in Map 1 at the Premises to prevent access to the Impacted Area by members of the public. Continue to prevent public access to the Impacted Area unless advised by the EPA.

B. Do not import any material to the Premises.

C. Do not export any material from the Premises, unless it has been classified in accordance with the EPA's *Waste Classification Guidelines.*

D. By **5pm Friday 29 December 2017,** engage an occupational hygienist (that is registered with the Australian Institute of Occupational Hygienists Inc) to determine the extent of the asbestos contamination in the Impacted Area. Asbestos fragments on the surface of the Impacted Area

E. By **5pm Friday 29 December 2017,** engage a suitably qualified expert to conduct a Waste Classification of the fill material that has been land applied in the Impacted Area at the Premises.

F. By **5pm Wednesday 31 January 2018,** provide a copy of the Waste Classification of the fill material (as required above) to the EPA and advise the EPA as to Council's proposed actions in relation to the fill material and remediation of the Impacted Area.

FEE TO BE PAID

- You are required by law to pay a fee of $535 for the administrative costs of issuing this notice. An invoice for the fee has been attached to this notice.
- It is an offence not to pay this fee. However you can apply for an extension of time to pay the fee or for the fee to be waived. At the end of this notice there is information about how and when to pay the fee and how to apply for an extension or a waiver of the fee.

Clean-Up Notice

Celeste Forestal

Unit Head

Waste & Resource Recovery

(by Delegation)

INFORMATION ABOUT THIS CLEAN-UP NOTICE

- This notice is issued under section 91 of the Protection of the Environment Operations Act 1997.
- It is an offence against the Act not to comply with a clean-up notice unless you have a reasonable excuse.

Penalty for not complying with this notice

- The maximum penalty for a corporation is $1,000,000 and a further $120,000 for each day the offence continues. The maximum penalty for an individual is $250,000 and a further $60,000 for each day the offence continues.

Cost recovery from the person who caused the incident

- If you comply with this clean-up notice but you are not the person who caused the pollution incident to which the notice relates, you have a right to go to court to recover your costs of complying with the notice from the person who caused the incident.

Deadline for paying the fee

- The fee must be paid by **no later than 30 days after the date of this notice**, unless the EPA extends the time to pay the fee, or waives the fee.

How to pay the fee

- Possible methods of payment are listed on the last page of the attached invoice/statement.
- Please include the payment slip from the attached invoice/statement with your payment.

How to apply for an extension of time to pay/waive the fee

- Any application for and extension of time to pay the fee or for the fee to be waived should be made in writing to the EPA. The application should set out clearly why you think your application should be granted.

Clean-Up Notice

Other costs

- The Protection of the Environment Operations Act allows the EPA to recover from you reasonable costs and expenses it incurs in monitoring action taken under this notice, ensuring the notice is complied with and associated matters. (If you are going to be required to pay these costs and expenses you will later be sent a separate notice called a "Notice Requiring Payment of Reasonable Costs and Expenses").

Continuing obligation

- Under section 319A of the Act, your obligation to comply with the requirements of this notice continues until the notice is complied with, even if the due date for compliance has passed.

Variation of this notice

- This notice may only be varied by subsequent notices issued by the EPA.

Clean-Up Notice

MAP 1

DOC18/48226

Randwick City Council
30 Frances St
RANDWICK NSW 2031

EMAIL

2 February 2018

Attention: Mr Clarke

Draft Asbestos Management Plan - Further Works Required

The EPA has reviewed the draft "*Asbestos Management Plan Jack Vanny Reserve (Mistral Point)*" prepared by Pickford & Rhyder Consulting Pty Ltd and dated 22 January 2018 (the AMP). The EPA does not consider that the AMP sufficiently:

- meets the requirements of Clean-Up Notice No.1559630; nor
- address the risk posed by the asbestos present in Jack Vanny Reserve.

You must determine the extent of the asbestos contamination

Action item D of Clean-Up Notice No.1559630 states: "*By 5pm Friday 29 December 2017, engage an occupational hygienist (that is registered with the Australian Institute of Occupational Hygienists Inc) to determine the extent of the asbestos contamination in the Impacted Area."*

The AMP does not sufficiently assess the extent of the contamination. No determination of the spread, density or depth of asbestos contamination has been made.

In addition, no assessment of the potential for friable asbestos in the soil has been made. The AMP states that "*there is no evidence of any 'friable' asbestos materials found on site*". However this has not been adequately demonstrated. We understand that the assessment undertaken by Pickford & Rhyder Consulting Pty Ltd has been a visual assessment. Friable asbestos contamination in soil can only be determined by laboratory analysis. The EPA understands that no soil sampling or testing has been undertaken to date.

By no later than **5pm 23 February 2018**, you must provide to the EPA a report which assesses the extent of the asbestos contamination in the *Impacted Area*.

You must remediate the area to remove any risk posed by the asbestos contamination

Without understanding the extent of the asbestos contamination, the EPA is unable to determine if the proposed measures in the AMP are sufficient to remove risk to public health and the environment.

Where the extent of contamination is significant, and there is risk of future exposure of asbestos, the EPA does not consider 'emu picking' an adequate control measure.

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You must revise the AMP based of the results of assessment of the extent of asbestos contamination. A revised AMP must be provided to the EPA by no later than **5pm 23 February 2018.**

If you have any questions regarding this matter, please contact Melissa Ward on 9995 5747.

Yours sincerely

DEANNE PITTS
A/Unit Head Waste Compliance
Environment Protection Authority