



Mirvac Developments Pty Ltd  
Hazardous Materials Survey

SOPA Site 53  
2 Figtree Drive, Sydney Olympic Park, NSW

17 September 2014  
43567/58847 (Rev A)  
JBS&G

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## List of Abbreviations

AC	Asbestos Cement
ACM	Asbestos Containing Material
ANZECC	Australian and New Zealand Environment Conservation Council
BEBB	Black Electrical Backing Board
COC	Chain of Custody documentation
CLM	Contaminated Land Management
EPA NSW	Environment Protection Authority, New South Wales
FCS	Fibre Cement Sheeting
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectrometry
LD	Lead Dust
LP	Lead Paint
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
PCBs	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
SMF	Synthetic Mineral Fibre
SWA	Safe Work Australia
WHS (WH&S)	Workplace Health and Safety
WSA	Work Safe Australia

## 1. Introduction

### 1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Mirvac Developments Pty Ltd (Mircac, the client) to undertake a due-diligence hazardous materials survey (HMS) of selected structures at 2 Figtree Drive, Sydney Olympic Park, NSW (the site, **Figure 1**).

For the purposes of this investigation, the selected structures were identified as:

- Building 1; and
- Building 2.

The surveyed structure locations are shown in **Figure 2**.

The HMS was completed on 19 August 2014 by Matthew Murray and Matthew O'Brien of JBS&G, both experienced hazardous materials surveyors.

The selected structures were inspected for the following:

- Asbestos containing materials (ACMs);
- Lead based paint (LP);
- Lead in ceiling cavity dust (LD);
- Synthetic Mineral Fibres (SMFs); and
- Polychlorinated biphenyls (PCBs).

### 1.2 Objectives

The objective of the HMS is to identify the presence, quantity and condition of any hazardous materials in the buildings for the information of contractors completing demolition works of the built structures at the site.

The HMS and production of this report have been undertaken in accordance with the requirements of:

- *Work Health and Safety Act (2011)*;
- *Work Health and Safety Regulation (2011)*;
- *How to Safely Remove Asbestos Code of Practice, WorkCover NSW, (2011)*;
- *How to Manage and Control Asbestos in the Workplace Code of Practice, WorkCover NSW (2011)*;
- Australian Standard AS4361.2 (1998) *Guide to Lead Paint Management - Part 2: Residential and Commercial Buildings*;
- *National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)] and National Code of Practice for the Safe Use of Synthetic Mineral Fibres, National Occupational Health and Safety Commission [NOHSC:2006(1990)]*; and
- *Identification of PCB-containing Capacitors: An information booklet for Electricians and Electrical Contractors, Australian and New Zealand Environment Conservation Council (ANZECC 1997)*.

### 1.3 Limitations

Whilst all reasonable care has been taken by JBS&G during the HMS, this report is limited due to:

- Only safely accessible areas of the site were surveyed.
- No below ground investigation was undertaken.
- Limited access to internal building components e.g. set floor, walls, ceiling cavities, lift shafts etc., in which case only representative areas were inspected with the hand tools available to the JBS&G consultants for destructive investigation.
- Access restrictions to operational areas such as energised services, gas, air conditioning/heating, pressurised vessels, chemical lines etc.;
- Lack of building structural and/or layout plans at the time of inspection; and
- Potential materials located in areas in which they could not reasonably be envisaged or anticipated.

It should be noted that buildings built between the 1930s - 1980s may have general occurrences of ACMs in areas which are not readily accessible with the hand tools available for the survey. These areas and materials may include:

- Fibre Cement Sheeting (FCS) used as packing to bearers and joists in the underfloor void or as boxing/shuttering to concrete formwork;
- FCS packing between window/door frames and timber studs; and
- Compressed FCS underneath tiled floor areas throughout.

Whilst all care is taken by the consultants to uncover hidden materials, not all areas can be accessed within the allowable timeframe without more industrial (power) tools. As such, only minor destructive sampling techniques were employed to gain access to the areas documented in the Hazardous Materials Register (**Appendix C and D**). Consequently, without substantial demolition of the building, it is not possible to guarantee that every source of hazardous material has been detected. JBS&G recommends that these areas be inspected as the demolition progresses to confirm the presence or absence of hazardous materials.

In the event suspected hazardous materials are identified during strip out or demolition which are not included in this report, JBS&G recommends that works should cease and an assessment of the materials undertaken by a competent person for further appropriate recommendations.

No one section or part of a section of this report is to be taken as giving an overall idea of this report. Each section is to be read in conjunction with the whole of this report, including the appendices and attachments.

## 2. Methodology

### 2.1 Hazardous Materials

#### 2.1.1 Asbestos Containing Materials

Representative samples of suspected ACMs were collected for analysis at a NATA accredited laboratory using polarised light microscopy in conjunction with dispersion staining techniques. Similar materials to those analysed or other materials known to contain asbestos from the consultant's experience (e.g. Electrical backing boards, corrugated Asbestos Cement (AC) roofs and older fibre cement sheeting) or materials not accessible may also be assumed to contain asbestos as per the relevant Code of Practice.

At the time of sample collection, the following details were recorded:

- Location;
- Type of material;
- Accessibility;
- Condition;
- Friability; and
- Volume/dimensions.

#### 2.1.2 Lead Based Paint

Australian Standard AS4361.2 (1998) *Guide to Lead Paint Management Part 2: Residential & Commercial Buildings* defines lead paints as those in which the lead content (calculated as lead metal) is in excess of 1.0 percent by weight of the dry film. This can be determined by field spot tests, laboratory testing or the use of portable X-ray fluorescence (XRF) field tests. JBS&G utilises XRF technology as a screening tool for the identification of lead based paints in the field.

#### 2.1.3 Polychlorinated Biphenyls

Old fluorescent light fittings and other appliances which may contain capacitors containing PCB dielectric oil are identified by inspection and evaluation with the consultant's experience of similar light fittings and appliances. Alternatively, where possible and when it was safe to do so, a representative light fitting was opened to reveal the capacitor and the make and model recorded to be compared against the ANZECC (1997) list of PCB containing capacitors.

#### 2.1.4 Synthetic Mineral Fibres

SMF containing materials were either sampled as per the asbestos methodology or assumed to contain SMF from the consultant's experience of similar materials.

### 2.2 Inaccessible Areas

As per the *Code of Practice for the Management and Control of Asbestos in the Workplace*, any areas not accessible must be recorded as such. Where hazardous materials are suspected to be contained within inaccessible areas, these shall be documented in this report and the associated Hazardous Materials Register (**Appendix C and D**).

### 3. Site Description

#### 3.1 Site Overview

The site comprised a parcel of land that is accessed via Figtree Drive situated along the north-west portion of the site. A car-park, security gate house and landscaped area exist in the south eastern and western portion of the site and in close proximity to Building 1 and Building 2 (**Figure 2**).

Building 1 and 2 were dual-storey, glass and concrete veneer structures with primary functions identified as offices. These buildings consisted of large open rooms containing office cubicles and other supporting facility rooms such as bathrooms, kitchens and shower rooms. Both Building 1 and Building 2 were situated on a concrete base and surrounded by cement footpaths and landscaped areas. In addition, Building 2 contained a basement that was primarily observed to be concrete/fibrous cement walls, concrete flooring and concrete ceiling.

Information provided during the site inspection by a site representative indicated that the buildings were constructed in the late 1990's, however no construction diagrams were available. Given their construction in the late 1990's, the potential for asbestos containing material to have been used in their construction is low. However, the use of asbestos in the workplace in Australia continued until as later as 2002 and the presence of asbestos in the buildings cannot be completely ruled out. Consequently, a conservative approach has been applied, particularly when assessing the potential for asbestos to be present in inaccessible areas.

The type, location, friability, accessibility and approximate quantities of identified and suspected hazardous materials are provided in the Hazardous Materials Register in **Appendix C and D**.

## 4. Results

### 4.1 Hazardous Materials

All identified hazardous materials are recorded in the Hazardous Materials Register in **Appendix C and D** with relevant photographs in **Appendix A**. NATA accredited laboratory analysis results are provided in **Appendix B**.

#### 4.1.1 Asbestos Containing Materials

A number of materials were sampled and tested for asbestos. No samples returned results that indicated that these material contained asbestos.

James Hardi Versilux Sheeting was observed in the basement of Building 2. The material safety data sheet indicates that this material does not contain asbestos (**Appendix E**).

The eaves of both buildings were observed to be material that could potentially contain asbestos. Due to its inaccessibility, no sampling of this material could be undertaken. The eaves of Building 1 and Building 2 are therefore deemed to contain asbestos until this material can be qualified.

#### 4.1.2 Lead Based Paints

A number of paints were identified and tested at the time of inspection. No locations returned results that indicated lead containing paints.

#### 4.1.3 Lead in Dust

No samples were collected for lead in dust analysis at the time of inspection as there were no observed collections of accumulated dust. A ceiling cavity was identified in both Building 1 and Building 2, however both were inaccessible (See **Section 4.2**).

#### 4.1.4 Polychlorinated Biphenyls

PCB containing capacitors in light fittings were assumed to be not present at the time of this inspection within the newer fluorescent light fitting observed throughout the site. Due to uncertainty surrounding electricity supply and whether fittings and appliances were live or not, no light fittings or appliances underwent a detailed inspection.

#### 4.1.5 Synthetic Mineral Fibres

One sample, identified as M2 (**Appendix B**), indicated the presence of SMF. This sample was taken from Building 2 in the power room from the insulation between the sarking and the wall cavity. Sarking was also observed in the ceiling cavities of Building 1 and Building 2, but was not accessible due to height restrictions. Further investigation of this material in other locations was not undertaken due to its inaccessibility.

### 4.2 Inaccessible Areas

As noted in **Section 1.3** substantial demolition of the fabric of the buildings was not undertaken as part of this survey and there is the potential for hazardous materials to be contained within structural parts of the building that were not accessed during the survey. Given the age of the buildings the potential for hazardous materials to be present in inaccessible areas is minor but as a conservative measure inaccessible areas of the building are considered to potentially contain hazardous materials.

Inaccessible areas for Building 1 included wall and ceiling cavities, the telecom room, the electrical room and the communication room. In addition, no sampling of the eaves was undertaken due to the height from ground level.

Inaccessible areas for Building 2 included ceiling and wall cavities, the security office and the roof and eaves. As per building 2, the material compositions of the eaves were not sampled due to height access restrictions. A basement was also located beneath building 2. Due to the lack of light, a thorough investigation was not under-taken, however, the material observed was primarily concrete walls and ceiling and James Hardi Versilux sheeting.

## 5. Conclusions and Recommendations

### 5.1.1 Asbestos Containing Materials

No asbestos containing material has been positively identified on the site. Sampling of the eaves has not been conducted for building 1 and 2 based on the inaccessibility of these areas. Given the age of the buildings it is unlikely that the material in the eaves contains asbestos, however, as a conservative measure the eaves are assumed to contain asbestos until further assessment proves otherwise. It is recommended that safe access be gained so that sampling can be conducted of this material to confirm that it does not contain asbestos and avoid unnecessarily costly removal procedures.

If sampling of the eave material is not conducted, the following removal practices apply:

- A Class A or Class B licensed asbestos removalist shall be engaged to remove all non-friable asbestos materials outlined in the Hazardous Materials Registers, included as **Appendix C and D** prior to any structural demolition works commencing .
- WorkCover is to be notified of all asbestos removal work with appropriate permits to remove non-friable asbestos obtained prior to works commencing. Removal and disposal of non-friable asbestos materials shall be undertaken in accordance with *Work Health and Safety Act (2011)*, *Work Health and Safety Regulation (2011)* and the Safe Work Australia publication *How to Safely Remove Asbestos Code of Practice (2011)*. The materials should be disposed of to an appropriately licensed landfill in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste (DECCW 2009)*.
- While not mandatory during the removal of non-friable ACM, it is considered best practice and recommended that asbestos air monitoring is undertaken during any non-friable asbestos removal works.
- Following removal works, a clearance inspection shall be completed by a licensed asbestos assessor or competent person to ensure that the deemed to contain asbestos materials identified in the Hazardous Materials Registers have been removed to a satisfactory industry standard. Following the completion of the clearance inspection, a clearance certificate shall be issued by the licensed asbestos assessor or competent person to confirm that the asbestos containing materials have been successfully removed and that the site is suitable for planned works to continue. A clearance certificate should be issued for each individual building where deemed to contain asbestos materials was identified.

### 5.1.2 Lead Based Paints

Lead based paints were not identified during the survey.

### 5.1.3 Lead in Dust

No immediate action is required to remediate lead impacted dust as there were no identified occurrences in the areas surveyed.

### 5.1.4 Polychlorinated Biphenyls

PCB containing capacitors in light fittings were assumed to be not present at the time of this inspection within the newer fluorescent light fittings observed throughout the site.

### 5.1.5 Synthetic Mineral Fibre

SMF containing materials were observed and sampled in the area between the sarking and wall cavity of building 2 in the power room. Sarking was also observed in the ceiling cavities of Building 1 and Building 2. Due to the inaccessibility of these areas, no further sampling of the material underneath the sarking could be taken. SMF containing material is therefore assumed to be in these areas and should be treated with the following management practice.

- SMF materials can be removed with the building waste with care taken not to generate fibres. Appropriate PPE is recommended including the use of P2 respirator as minimum and appropriate removal methodology as outlined in *the National Standard for Synthetic Mineral Fibres* [NOHSC: 1004(1990)] and *National Code of Practice for the Safe Use of Synthetic Mineral Fibres* [NOHSC: 2006(1990)].

SMF containing materials may also be located within internal areas of the structures already surveyed..

### 5.2 Inaccessible Areas

As previously noted, there is the potential for hazardous material to be present in areas that were inaccessible during the survey (**Section 4.2**). Any suspected hazardous materials encountered once demolition commences should be treated as unexpected finds in accordance with **Section 5.3**.

### 5.3 Unexpected Finds

Any materials deemed to be consistent with those detailed in the Hazardous Materials Register that have not been previously identified should be assumed to have the same content and be treated accordingly.

Should any additional suspected hazardous materials be observed during the future operation of the site and prior to demolition works commencing, works should cease until a suitably qualified occupational hygienist can assess the suspected hazardous material and provide appropriate recommendations for management and/or removal.

## 6. Limitations

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

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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

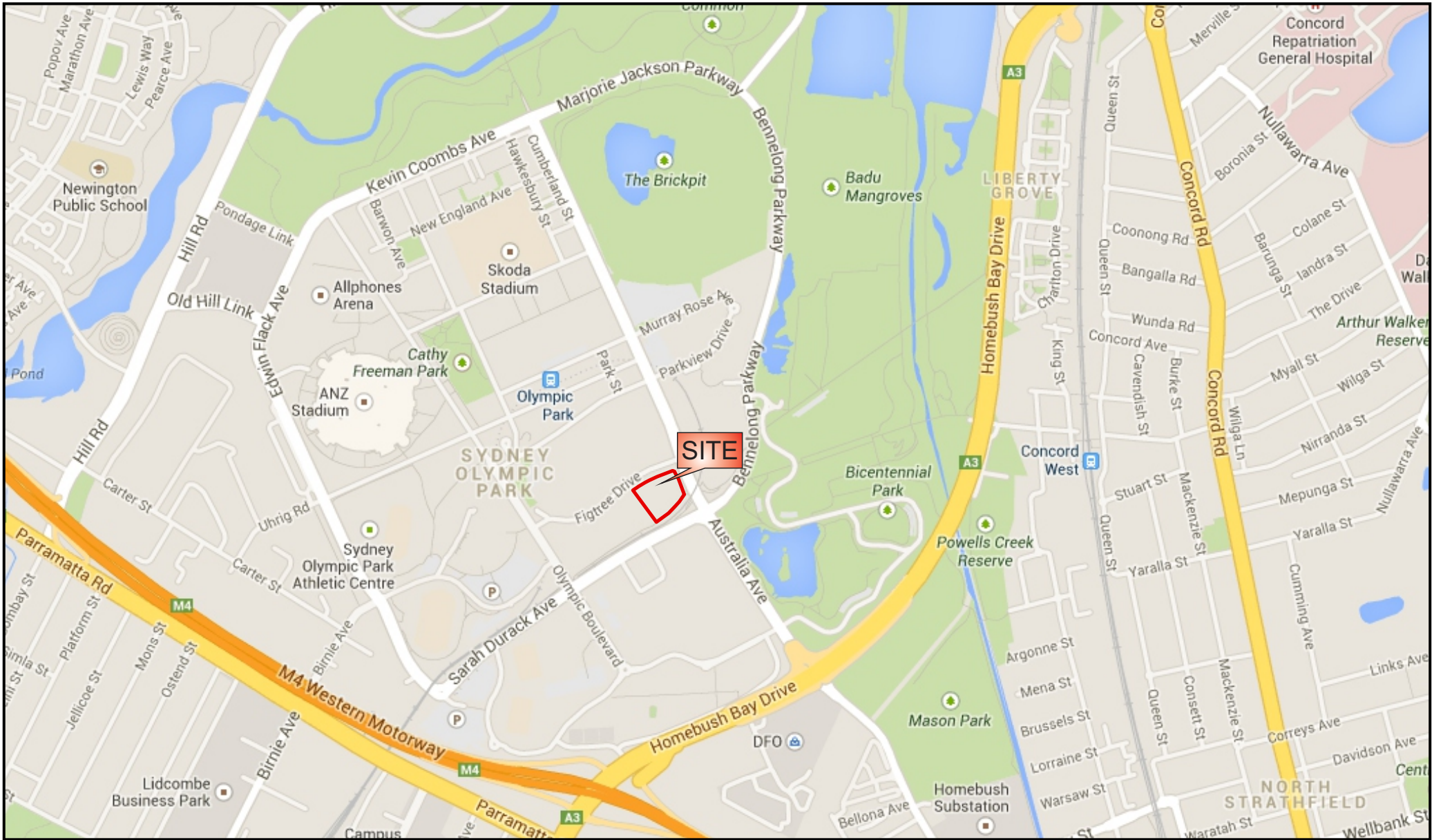
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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

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

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

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

## Figures



Source: © 2014 Google

© 2014 JBS&G

0 100 200 400 m			
Scale: Approximate			
Datum: MGA94 Zone 56 - AHD			
A4			
A	Original Issue - R02	LL	17-09-2014
Rev	Description	Drn.	Date

Legend:

Approximate Site Boundary



Figure 1: Site Location

Client: Mirvac

Project: 2 Figtree Drive, Sydney Olympic Park, SOPA Site 53 ESA

Job No: 43567\_01

File Name: 43567\_01





Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 01/04/2014, accessed 04/07/2014

© 2014 JBS&G

0 15 30 60 m			
Scale: 1:1,750			
Datum: GDA 1994 MGA Zone 56 - AHD			
A4			
A	Original Issue - R02	LL	17-09-2014
Rev	Description	Dm.	Date:

**Legend:**

- ▭ Approximate Site Boundary
- Building Extent

**JBS&G** Figure 2: Site Layout

Client: Mirvac

Project: 2 Figtree Drive, Sydney Olympic Park, SOPA Site 53 ESA

Job No: 43567

File Name: 43567\_02



## Appendix A: Photos



Photograph 1: Synthetic Mineral Fibre Insulation Located between sarking and wall cavity (Building 2)



Photograph 2: Fibrous cement sheeting which does not contain asbestos (Building 2 – Cleaners Room)



Photograph 3: Foam lagging of pipework in Plant Room. (Building 2- Plant Room)



Photograph 4: Pipework without insulation lagging or identifiable fibrous gaskets. (Building 2 – Plant Room)

© 2013 JBS&G

Source: Site inspection completed 7.07.2014			
0	Original Issue -	R01	7.07.2014
Rev	Description	Drn.	Date

**JBS&G** Appendix: Photograph Log

Client: Mirvac Developments

Project: Due Diligence SOPA Site 53

Job No: 43567

File Name: Photographic Log

## Appendix B: Laboratory Results

<b>Company Name:</b> JBS & G Australia (NSW & WA) P/L <b>Address:</b> Level 1, 50 Margaret St Sydney NSW 2000  <b>Client Job No.:</b> OLYMPIC PARK 43567	<b>Order No.:</b> <b>Report #:</b> 430853 <b>Phone:</b> 02 8245 0300 <b>Fax:</b>	<b>Received:</b> Sep 3, 2014 5:30 PM <b>Due:</b> Sep 4, 2014 <b>Priority:</b> 1 Day <b>Contact Name:</b> Matt Murray
<b>Eurofins   mgt Client Manager: Charl Du Preez</b>		

<b>Sample Detail</b>					Asbestos Absence / Presence
<b>Laboratory where analysis is conducted</b>					
Melbourne Laboratory - NATA Site # 1254 & 14271					
Sydney Laboratory - NATA Site # 18217					
Brisbane Laboratory - NATA Site # 20794					
<b>External Laboratory</b>					
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
M1	Aug 19, 2014		Other	S14-Se02823	X
M2	Aug 19, 2014		Other	S14-Se02824	X
M3	Aug 19, 2014		Other	S14-Se02825	X
M4	Aug 19, 2014		Other	S14-Se02826	X
M5	Aug 19, 2014		Other	S14-Se02827	X
M6	Aug 19, 2014		Other	S14-Se02828	X

## Sample Receipt Advice

Company name: **JBS & G Australia (NSW & WA) P/L**

Contact name: Matt Murray  
Client job number: OLYMPIC PARK 43567  
COC number: 00635  
Turn around time: 1 Day  
Date/Time received: Sep 3, 2014 5:30 PM  
Eurofins | mgt reference: **430853**

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

### Contact notes

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

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

Results will be delivered electronically via e.mail to Matt Murray - MMurray@jbsg.com.au.

### Eurofins | mgt Sample Receipt



## Certificate of Analysis



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

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

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

**Attention:** Matt Murray  
**Report:** 430853-S  
**Client Reference:** **OLYMPIC PARK 43567**  
**Received Date:** 3 September 2014  
**Date Reported:** 4 September 2014

### Methodology:

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

**Site Reference:** OLYMPIC PARK 43567  
**Date Sampled:** 19 August 2014  
**Report:** 430853-S

Client Sample ID	Eurofins   mgt Sample No.	Date Sampled	Sample Description	Result
M1	14-Se02823	19 August 2014	Approximate Sample Dimensions: 15mm x 7mm x <1mm Sample consisted of: Pink-white soft mica coating material and organic debris	Organic fibres detected, no asbestos detected
M2	14-Se02824	19 August 2014	Approximate Sample Dimensions: 35mm x 21mm x 2mm Sample consisted of: Yellow loose vitreous fibrous insulation material	Synthetic mineral fibres detected, no asbestos detected
M3	14-Se02825	19 August 2014	Approximate Sample Dimensions: 4mm x 3mm x <1mm Sample consisted of: Grey powdery fibrous cement debris	Organic fibres detected, no asbestos detected

M4	14-Se02826	19 August 2014	Approximate Sample Dimensions: 67mm x 28mm x 2mm Sample consisted of: White lined amber compressed sheet	Organic fibres detected, no asbestos detected
M5	14-Se02827	19 August 2014	Approximate Sample Dimensions: 44mm x 22mm x 4mm Sample consisted of: Beige compressed fibre cement, bitumen and coating material	Organic fibres detected, no asbestos detected
M6	14-Se02828	19 August 2014	Approximate Sample Dimensions: 84mm x 28mm x 2mm Sample consisted of: Pink flexible vinyl sheet and adhesive	Organic fibres detected, no 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.

<b>Description</b>	<b>Testing Site</b>	<b>Extracted</b>	<b>Holding Time</b>
Asbestos – LTM-ASB-8020	Sydney	4 September 2014	Indefinite

## Eurofins | mgt Internal Quality Control Review and Glossary

### General

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

### Holding Times

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

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

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

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

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

### UNITS

mg/kg: milligrams per kilogram

mg/l: milligrams per litre

µg/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

‰: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

### TERMS

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

**QC - ACCEPTANCE CRITERIA**

RPD Duplicates:

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

Results <10 times the LOR:

No Limit

Results between 10-20 times the LOR:

RPD must lie between 0-50%

Results >20 times the LOR:

RPD must lie between 0-30%

Surrogate Recoveries:

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

**QC DATA GENERAL COMMENTS**

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

**Comments**

Sample 14-Se02825 analysed as received; the result may not be a true indication of the sampled area due to the small sample size and can lead to an inaccurate interpretation.

**Sample Integrity**

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

**Qualifier Codes/Comments**

Code	Description
N/A	Not applicable

Authorised by

Charl du Preez Client Services  
 Nibha Vaidya Approved Counter/Identifier  
 Alex Tam Approved Counter/Identifier



**Glenn Jackson**  
**National Laboratory Manager**

Final Report – this report replaces any previously issued Report.

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

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## Appendix C: Hazardous Materials Register: Building 1

Hazardous Materials Register  
 Building 1: 2 Figtree Drive, Sydney Olympic Park, NSW



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	FRIABILITY	ACCESSIBLE AREA?	ANALYTICAL RESULT	MATERIAL CONDITION	APPROXIMATE QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
<b>Asbestos Containing Materials (ACM)</b>										
	Exterior of building	Flat sheet eave lining (all faces)	Non-friable	No	Assumed to contain asbestos	Good	>100 m <sup>2</sup>	Sample or remove prior to demolition	August 2014 – JBS&G (MM)	
<b>No Asbestos Detected (NAD)</b>										
M6	Reception area	Cream vinyl flooring	Non-friable	Yes	No asbestos detected	Good	15 m <sup>2</sup>	-	August 2014 – JBS&G (MM)	
<b>Synthetic Mineral Fibres (SMF)</b>										
As per M2 (Building 2)	Insulation between sarking and ceiling/wall cavities	Yellow fibrous material	Friable	No	Contains synthetic mineral fibres	Good	>100 m <sup>2</sup>	Handle in accordance with National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006(1990)].	August 2014 – JBS&G (MM)	
<b>No Polychlorinated Biphenyls (PCB) Identified</b>										
									August 2014 – JBS&G (MM)	
<b>No Lead Based Paint Detected</b>										
									August 2014 – JBS&G (MM)	

Notes: FCS = Fibrous Cement Sheeting; BEBB = Black Electrical Backing Board; SMF = Synthetic Mineral Fibre; AC = Asbestos Cement; PCB = Polychlorinated Biphenyls; VFT = Vinyl Floor Tile; CFS = Compressed fibrous cement Sheeting; A/C = Air Conditioning unit;

## Appendix D: Hazardous Materials Register: Building 2

Hazardous Materials Register  
 Building 1: 2 Figtree Drive, Sydney Olympic Park, NSW



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	FRIABILITY	ACCESSIBLE AREA?	ANALYTICAL RESULT	MATERIAL CONDITION	APPROXIMATE QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
<b>Asbestos Containing Materials (ACM)</b>										
	Exterior of building	Flat sheet eave lining (all faces)	Non-friable	No	Assumed to contain asbestos	Good	>100 m <sup>2</sup>	Sample or remove prior to demolition	August 2014 – JBS&G (MM)	
<b>No Asbestos Detected (NAD)</b>										
M5	Exterior of building	Yellow painted cement fibrous sheeting	Non-friable	Yes	Does not contain asbestos	Good	>100 m <sup>2</sup>	-	August 2014 – JBS&G (MM)	
M1	Cleaners room (west)	White painted cement fibrous sheeting	Non-friable	Yes	Does not contain asbestos	Good	2 m <sup>2</sup>	-	August 2014 – JBS&G (MM)	
M3	Upper level power room	Fibrous cement sheeting	Non-friable	Yes	Does not contain asbestos	Good	30 m <sup>2</sup>	-	August 2014 – JBS&G (MM)	
M4	Meeting room	Black mastic	Non-friable	Yes	Does not contain asbestos	Good	10 m <sup>2</sup>	-	August 2014 – JBS&G (MM)	
<b>Synthetic Mineral Fibres (SMF)</b>										
M2	Upper level power room: Insulation between sarking and wall cavity	Yellow fibrous material	Friable	Yes	Contains synthetic mineral fibres	Good	>100 m <sup>2</sup>	Handle in accordance with National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006(1990)].	August 2014 – JBS&G (MM)	
As per M2	Insulation between sarking and ceiling/wall cavities	Yellow fibrous material	Friable	Yes	Deemed to contain synthetic mineral fibres	Good	>100 m <sup>2</sup>	Handle in accordance with National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006(1990)].	August 2014 – JBS&G (MM)	
<b>No Polychlorinated Biphenyls (PCB) Identified</b>										
									August 2014 – JBS&G (MM)	
<b>No Lead Based Paint Detected</b>										
									August 2014 – JBS&G	

# Hazardous Materials Register

Building 1: 2 Figtree Drive, Sydney Olympic Park, NSW



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	FRIABILITY	ACCESSIBLE AREA?	ANALYTICAL RESULT	MATERIAL CONDITION	APPROXIMATE QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
									(MM)	

Notes: FCS = Fibrous Cement Sheeting; BEBB = Black Electrical Backing Board; SMF = Synthetic Mineral Fibre; AC = Asbestos Cement; PCB = Polychlorinated Biphenyls; VFT = Vinyl Floor Tile; CFS = Compressed fibrous cement Sheeting; A/C = Air Conditioning unit;

**Appendix E: James Hardie Versilux Sheeting, Material Safety Data Sheet.**



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## MATERIAL SAFETY DATA SHEET

### STATEMENT OF HAZARDOUS NATURE

This product contains crystalline silica, which is classified as a hazardous substance according to the criteria provided by the Australian Safety and Compensation Council

**Address:** 10 Colquhoun Street  
Rosehill NSW 2142 Australia  
**Telephone:** 13 11 03 (General Information and Emergency)

### Section 1. Chemical Products and Company Identification

#### Product Name/Trade Names:

**New Products:** Scyon™ Stria™ cladding, Scyon™ Matrix™ cladding, Scyon™ Axon™ cladding, Scyon™ Linea cladding, Scyon™ Axent trim, Scyon Secura™ exterior flooring, Scyon™ Secura™ interior flooring, EasyLap™ panel, Architectural™ Invibe™ Panels and Architectural™ Inraw™ Panels

Core products: Artista® column, Ceramic Tile Underlay, ComTex® Façade Panel, ExoTec® Façade Panel, HardieBrace™ Sheet Bracing, HardieFlex™ Eaves Lining, HardieFlex™ Sheet, HardieGroove™ Lining, HardiePanel™ Compressed Sheets, HardiePlank™ Smooth Cladding, HardiePlank™ Woodgrain Cladding, HardiePlank™ Old Style Cladding, HardiePlank™ Rough-Cut Cladding, HardiePlank™ Rusticated Cladding, HardiePlank™ Shingled Siding cladding, HardieScreen™ Lattice, HardieTex™ Base Sheet, PanelClad® Stucco, PanelClad® TextureLine, PineRidge® Lining, PrimeLine® Heritage Cladding, PrimeLine® Chamfer Cladding, PrimeLine® Summit Cladding, PrimeLine® Newport Cladding, Villaboard® Lining, Versilux® Wall & Ceiling Lining, Vinyl and Cork Underlay, HardieFence™ sheets and Mine Stopping Sheet

**Deleted Products:** Ezi-Grid® Tile Underlay, HardiRock™, Classic Weatherboard, Decorweave C.P, Fiesta Ceiling sheet, Hardiflex™ Covermould, HardiFlex™ Verge Strip, Hardiform™, PanelClad™ Sierra, Old style Weatherboard, Panelock™, Shingled Weatherboard, Wunderlay™ Board, Hardiwall™, CMX™ Base Sheet, HardiGlaze™ Swirl, HardiPlank® Cross Cut and Super Six™, Scyon Secura™ wet area flooring, AquaTec™ flooring, HardiGlaze® Tile, HardiGlaze® Smooth, HardiGlaze® Premium,

**Note:** This material safety data sheet applies only to products manufactured *after* 1985. Products carrying these names and manufactured before 1985 may contain asbestos. Safety information on pre 1985 products may be obtained in Australia by telephone: 1800-025-563

**Other Names:** Fibre-cement, Fibre-reinforced cement, cellulose reinforced cement, FC and concrete sheeting

**Use:** The above products are used as internal/external wall cladding, flooring, roofing or fencing.

**Manufacturer:** James Hardie® Australia Pty Limited, 10 Colquhoun Street, Rosehill NSW 2142 Australia

**Effective date:** July 20, 2009. Check to verify the latest version or translation availability.

**NOTE:** As of the date of the preparation of this document, the information contained herein is believed to be accurate.



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Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	10-30%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous material for shipping purposes	266-043-4	10-60%
Cellulose	9004-34-6	Not a hazardous material for shipping purposes	232-674-9	<10%
Other non hazardous ingredients (pigments, fillers, and surface coatings)				<10%

**Note:** This product does not contain asbestos or asbestiform fragments. Cellulose comes from wood pulp.

## Section 2. Hazards Identification

**Risk Phrases:** Irritating to respiratory system  
Harmful: danger of serious damage to health by prolonged exposure through inhalation

**Safety Phrase:** Do not breathe dust

**Emergency Overview:** Not explosive, not a fire hazard

### Primary Routes of Entry and Potential Health Effects:

#### Inhalation:

**Acute effects** - Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust during sanding or sawing operations.

**Chronic Effects** - Repeated and prolonged overexposures to dust containing crystalline silica can cause silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Some studies suggest that cigarette smoking increases the risk of silicosis, bronchitis and lung cancer in persons also exposed to crystalline silica.

**Acute silicosis** - a sub-chronic disease associated with acute, massive silica exposure, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

#### Ingestion:

Unlikely under normal conditions of use, but swallowing the dust from this product may result in - irritation or damage to the mouth and gastrointestinal tract due to alkalinity of dust.



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**Eye:**

Dust may irritate the eyes from mechanical abrasion causing watering and redness.

**Skin:**

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

**Medical conditions generally aggravated by exposure:** Pulmonary function may be reduced by inhalation of respirable crystalline silica and/or cellulose. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia or restrictive lung diseases. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

**Smoking:**

Some studies suggest that cigarette smoking increases the risk of occupational respiratory diseases, including silica-related respiratory diseases.

**Carcinogenicity:**

**The International Agency for the Research on Cancer (IARC)** has classified crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources as carcinogenic to humans.

**LD50:**

Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

**Section 3. Hazardous Ingredients/Identity Information**

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	10-30%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous material for shipping purposes	266-043-4	10-60%
Cellulose	9004-34-6	Not a hazardous material for shipping purposes	232-674-9	<10%



## Section 4. First Aid Measures

**Signs and symptoms of over exposure:** Breathlessness, wheezing, cough, sputum production

**First Aid:**

**Swallowed:**

If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.

**Eye Contact:**

Remove contact lens. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.

**Skin Contact:**

Wash with mild soap and water. Contact physician if irritation persists or later develops.

**Inhaled:**

Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

**ADVICE TO DOCTOR:** Treat symptomatically

## Section 5. Fire Fighting Measures

James Hardie® manufactured building products are neither flammable nor explosive. Refer to page 1 for list of James Hardie manufactured building products.

**Fire and Explosion Hazard:**

1. Flash Point: Not applicable
2. Auto-ignition: Not applicable
3. Non-flammable and non-explosive

**Extinguishing Media:** This material is not combustible. Appropriate extinguishing media (carbon dioxide, foam, water, or dry chemical) for surrounding fire should be used.

**Fire Fighting:** Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

## Section 6. Accidental Release Measures

No special precautions are necessary to pick up product that has been dropped. The following applies to spills or releases of dust generated during cutting or sanding of the material.



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**Precautions:** Good housekeeping practices are necessary for cleaning up areas where leaks or spills have occurred, dust has accumulated, including leaks and spills. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Wherever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression with water and containment, enclosure or covers.

Use respiratory protection as described in Section 8.

**Cleanup Methods:** A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming with an industrial vacuum cleaner outfitted with a high-efficiency particulate air (HEPA) filter, is preferred to sweeping. Waste may be disposed of by landfill in compliance with federal, state and local requirements.

In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product. (refer to Section 10)

## **Section 7. Handling and Storage**

**Note:** James Hardie manufactured products in their intact state do not present a health hazard. The controls below apply to dust generated from the boards by cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading, and cleaning or moving dust.

**James Hardie ®'s recommendation:** Keep exposure to dust as low as reasonably possible. Respirable crystalline silica levels should not exceed those specified by the Australian Safety and Compensation Council and identified in this MSDS. Exposure to respirable (fine) silica dust depends on a variety of factors, including activity rate (e.g. cutting rate), method of handling (e.g. electric shears), environmental conditions (e.g. weather conditions, workstation orientation) and control measures used.

Practices likely to generate dust should be carried out in adequately ventilated areas. The work practices and engineering controls set out in Section 8 should be followed to reduce silica exposures.

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.



**Section 8. Exposure Controls and Personal Protection**

**EXPOSURE STANDARDS: WORKSAFE AUSTRALIA**

**Ingredients**

**Occupational Exposure Standards**

Crystalline Silica (Quartz)	0.1 mg/m <sup>3</sup> time-weighted average (TWA) respirable dust
Dust (NOS - not otherwise specified)	10 mg/m <sup>3</sup> TWA as inhalable dust
Calcium Silicate	10 mg/m <sup>3</sup> TWA as inhalable dust
Cellulose (paper )	10 mg/m <sup>3</sup> TWA as inhalable dust

Where a state or local authority prescribes a lower standard, the lower standard applies.

**Personal Protection**

**Respiratory:** When handling products that may generate silica dust: (1) Limit the release of dust by following our best practices found in our product specific installation manuals and technical specifications, or at [www.jameshardie.com.au](http://www.jameshardie.com.au); (2) work outdoors whenever possible, (3) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturers instructions to further limit respirable silica exposures, and (4) warn others in the area. Use and maintain respirators in accordance with AS/NZS 1715 & 1716 for particulate respirators. Select respirators based on the level of exposure to crystalline silica. Use respirators that offer protection to the highest concentrations of crystalline silica if actual concentrations are unknown. Comply with all other federal and state laws.

**Eye:** If cutting materials with power tools, dust resistant safety goggles/glasses should be worn. AS/NZS1336 “Recommended Practices for Eye Protection in the Industrial Environment” provides further guidance.

**Skin:** Loose comfortable clothing should be worn. Direct skin contact with dust and debris should be avoided by wearing long sleeved shirts and long trousers, a cap or hat, and gloves - standard duty leather or equivalent AS 2161 “Industrial Safety Gloves and Mittens”. Work clothes should be washed regularly.



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## **Engineering Controls:**

### **CUTTING OUTDOORS**

1. Position cutting station so that wind will blow dust away from user or others in working area and allow for ample dissipation.
2. Use one of the following methods for cutting::

#### **Best**

- Score and snap
- Hand guillotine
- shear

#### **Better**

- Dust reducing circular saw equipped with HardiBlade<sup>®</sup> Saw Blade and HEPA vacuum extraction

*Note: Other cutting methods may be permissible for certain products. Refer to the product specific installation manuals, technical specifications, or consult a qualified industrial hygienist.*

### **CUTTING INDOORS**

- Cut only using score and snap, hand guillotine or shears (manual, electric or pneumatic).
- Position cutting station in well-ventilated area to allow for dust dissipation.

### **SANDING/REBATING/DRILLING/OTHER MACHINING**

If sanding, rebating, drilling, or other machining are necessary, you should always wear a P1 or P2 dust mask and warn others in the immediate area. When using a grinder, always use an attached HEPA vacuum dust extraction system.

**IMPORTANT** 1. For maximum protection (lowest respirable dust production), James Hardie recommends always **NOTES:** using “Best”- level cutting methods where feasible

2. NEVER use a power saw indoors
3. NEVER use a circular saw blade that does not carry the HardiBlade<sup>®</sup> logo
4. NEVER dry sweep – Use wet suppression or HEPA Vacuum
5. NEVER use grinders without an attached HEPA vacuum dust extraction system and proper respiratory protection
6. ALWAYS follow tool manufacturer’s safety recommendations



## Section 9. Physical and Chemical Properties

**Appearance and Odour:** Solid boards or planks, coloured through grey or pink, or coated with various colours, flat or corrugated with various dimensions according to product.

**Vapour Pressure:** Not Relevant

**Specific Gravity:** Not Relevant

**Flammability Limits:** Not Relevant

**Boiling Point:** Not Relevant

**Melting Points:** Not Relevant

**Flash Point:** Not Relevant

**Autoignition Temp:** Not Relevant

**Volatility:** Not Relevant

**Solubility in Water:** Not Relevant

**Evaporation Rate:** Not applicable

## Section 10. Stability and Reactivity

**Stability:** Crystalline silica is stable under ordinary conditions.

**Conditions to Avoid:** Excessive dust generation during storage and handling.

### Materials to Avoid:

**Incompatibility:** Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride or oxygen difluoride may cause fires and/or explosions.

## Section 11. Toxicological Information

The product is not toxic in its intact form. The following applies to dust that may be generated during cutting, sanding, drilling, routing, crushing, otherwise abrading the product, or moving dust during cleaning process:

### Chronic Effects:

#### Inhaled:

Repeated and prolonged overexposures to dust containing crystalline silica can cause silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Some studies suggest that cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

The following relates to health effects of cellulose: Based on limited animal research, it is possible that repeated chronic inhalation exposure to cellulose fibre dust over time may lead to inflammation and scarring of the lung in humans. Precautions taken for crystalline silica dust will protect against cellulose.



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## **Section 12. Ecological Information**

There is a very limited amount of ecological data available on the effects of releases that may occur from this product being released into the environment. Clean up of the spilled product would not be expected to leave any hazardous material that could cause a significant adverse impact. There is a limited amount of ecological data available on crystalline silica, primarily because it is a naturally occurring mineral. An adequate representation of this data is beyond the scope of this document.

## **Section 13. Disposal Consideration**

Dispose of material as inert, non-metallic mineral in conformance with local, state and federal regulations.

## **Section 14. Transport Information**

There are no special requirements for storage and transport.

<b>UN No:</b>	None Allocated
<b>Dangerous Goods Class:</b>	None Allocated
<b>Hazchem Code:</b>	None Allocated
<b>Poisons Schedule:</b>	None Allocated
<b>Packing Group:</b>	Not Applicable
<b>Label:</b>	Local regulations may apply

## **Section 15. Regulatory Information**

Regulatory information is provided within the relevant sections of this material safety data sheet, as appropriate.



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## Section 16. Other Information

### **WARNING** **DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA**

James Hardie products contain sand, a source of respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, cement shears or, where not feasible, use a HardiBlade® Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - never dry sweep. For further information, refer to our installation instructions and Material Safety Data Sheets available at [www.jameshardie.com.au](http://www.jameshardie.com.au). **FAILURE TO ADHERE TO OUR WARNINGS, MATERIAL SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

James Hardie Australia Pty Limited  
10 Colquhoun Street  
Rosehill, NSW 2142 Australia  
13 11 03

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