REPORT TO

**JOHNSTAFF PROJECTS PTY LTD**

ON

# HAZARDOUS BUILDING MATERIALS SURVEY

FOR

**PROPOSED DEMOLITION WORKS**

AT

**LIVERPOOL HOSPITAL, P2 CAR PARK**
**GOULBURN STREET, LIVERPOOL, NSW**

Date: 5 September 2019
Ref: E32465BD2rpt HAZ

JKEnvironments
www.jkenvironments.com.au

EIS

dlcs ISO 9001 certified AS/NZS 4801 certified ISO 14001 certified

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Report prepared by:

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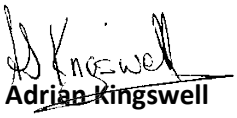

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For and on behalf of
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# 1 INTRODUCTION

John Staff Projects Pty Ltd on behalf of NSW Health Infrastructure ('the client') commissioned JK Environments (JKE)[1] to undertake a Hazardous Building Materials Assessment for the proposed demolition works at Liverpool Hospital, P2 Car Park Goulburn Street, Liverpool, NSW ('site'). The site location is shown on Figure 1.

This document was prepared specifically for the proposed redevelopment works and should not be considered a hazardous building materials management plan or removal control plan.

The document does not contain information regarding an assessment of risk, safe work procedures or control measures associated with hazardous building materials. In the event that hazardous building materials remain within the buildings/structures at the site a hazardous building materials management plan must be prepared.

## 1.1 Proposed Development Details

It is understood that the proposed development includes demolition of the existing multistorey carpark (identified as P2).

## 1.2 Scope of Work

The assessment was undertaken generally in accordance with a JKE proposal (Ref: EP49353BD-Haz) of 23 April 2019 and written acceptance from the client of 20 August 2019. The scope of work included the following:

- A detailed inspection of the existing building and structures;
- Sampling of representative materials in accordance with the assessment criteria and inspection procedure outlined in Section 4;
- Documentation of inspection finds including sample location, material type, condition, friability, photographic evidence and site location;
- Laboratory analysis of selected representative materials; and
- Preparation of a report presenting the results of the hazardous building materials assessment.

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

## 2 SITE DESCRIPTION

Field work for this investigation was undertaken on 27 August 2019. The site description at the time of the field work is outlined below. The site location is shown on Figure 1.

The P2 Car Park is located in the north section of the wider Liverpool Hospital (Western Campus) property. Access to the car park is either gained from the junction of Forbes and Campbell Street to the west or from Burnside Drive to the east. The carpark is of concrete, metal and brick construction with four levels of car parking and associated store rooms, offices and switch rooms. Fire stairs and vehicle ramps link the four levels for access of pedestrians and vehicles.

## 3 REGULATORY BACKGROUND INFORMATION

All work associated with the inspection and reporting of hazardous building materials is generally undertaken in accordance with the following legislation, guidelines and standards:

Table 3-1: Guidelines / Documents

| Guidelines/Regulations/Documents |
|---|
| **Asbestos** |
| *National Code of Practice How to Manage and Control Asbestos in the Workplace,* Safe Work Australia 2016 |
| *National Code of Practice How to Safely Remove Asbestos,* Safe Work Australia 2018 |
| *Code of Practice for the Safe Removal of Asbestos 2nd Edition,* National Occupational Health and Safety Commission: 2002 (2005) |
| *Code of Practice for the Management and Control of Asbestos in Workplaces,* National Occupational Health and Safety Commission: 2018 (2005) |
| *Management Of Asbestos In The Non-Occupational Environment*, Environmental Health Committee, Department of Health and Ageing, 2005 |
| *Working with Asbestos: Guide,* WorkCover Authority of New South Wales, 2008 |
| *Asbestos: The survey guide,* Health and Safety Executive, UK, 2010 |
| **SMF** |
| *National Standard for the Safe Use of Synthetic Mineral Fibres* [National Occupational Health and Safety Commission:1004 (1990)] |
| *National Code of Practice for the Safe Use of Synthetic Mineral Fibres* [National Occupational Health and Safety Commission:2006 (1990)] |
| **Lead** |
| *Guide to Lead Paint Management, Part 1: Industrial Applications,* Australian Standard AS4361.1, 1995 |
| *Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings, Australian Standard AS4361.2, 2017* |
| *National Standard for the Control of Inorganic Lead at Work,* National Occupational Health and Safety Commission: 1012 (1994) |
| *National Code of Practice for the Control and Safe Use of Inorganic Lead at Work,* National Occupational Health and Safety Commission: 2015 (1994) |

| Guidelines/Regulations/Documents |
|---|
| *Guidance Note For Ceiling Dusts Containing Lead,* WorkCover Authority of New South Wales |
| *Code of Practice for Ceiling Dust Removal*, Australian Dust Removalists Association, **http://www.adra.com.au/cop.html** |
| **PCBs** |
| *Polychlorinated Biphenyls Management Plan,* Environmental Protection & Heritage Council, Revised Edition, April 2003 |
| *Identification of PCB-Containing Capacitors,* Australian and New Zealand Environment and Conservation Council (ANZECC), 1997 |
| *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997,* made under the *Environmentally Hazardous Chemicals Act 1985* |
| **General** |
| *Work Health and Safety Act* 2011 (NSW) |
| *Work Health and Safety Regulation 2017 (NSW)* |
| *Control of Workplace Hazardous Substances, Code of Practice,* WorkCover Authority of NSW, 2006 |
| *National Code of Practice for the Control of Workplace Hazardous Substances*, National Occupational Health and Safety Commission: 2007 (1994) |
| *The Demolition of Structures,* Australian Standard AS2601 (2001) |

## 4 ASSESSMENT CRITERIA AND INSPECTION PROCEDURE

The assessment included a visual inspection of the structures, sampling and laboratory analysis as described in the following sections.

### 4.1 Asbestos Fibre Containing Materials

Representative samples of construction materials identified as potentially containing asbestos were obtained using hand tools by personnel wearing suitable personal protective equipment (PPE). The samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the chain of custody (COC) record presented in Appendix B.

Following the completion of the field inspection, the samples were forwarded to a National Association of Testing Authorities (NATA) registered laboratory, Envirolab Services Pty Ltd (NATA Accreditation No. 2901), for analysis. The asbestos samples were analysed using stereo and polarising light microscopy methods with dispersion staining techniques.

### 4.2 Lead Containing Materials

Representative samples of deteriorated paint films and accumulated dust that potentially contain elevated lead concentrations were obtained using hand tools by personnel wearing suitable PPE.

Only significantly deteriorated paint systems that are considered likely to impact on demolition/refurbishment practices or that are considered a health or environmental hazard were sampled and recorded.

The paint flakes obtained included all layers of paint on a particular surface and so are considered to be composites of the materials at each location. The paint flake samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the chain of custody (COC) record presented in Appendix C.

In accordance with the Australian Standard AS4361.2, 2017 *"Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings,* a lead in paint concentration greater than 1.0% w/w is considered to be lead based paint.

Settled dust sampling involved the collection of settled dust from a known surface area by wet wipe. The area should preferably be 0.09m$^2$ (which corresponds to an area 30 cm × 30cm) and in any event not less than 0.01m$^2$, depending on the amount of dust present. A non-alcoholic moistened wipe is folded to form a firm swab. The swab is placed flat onto the surface in one corner of the area to be sampled and rubbed across the entire area in an 'S' pattern. The wipe is re-folded so that the collected dust is on the inside and is again rubbed across the area at 90° to the first 'S'. The wipe is again folded with the dust inside and placed in the sterile sample container.

The lead concentration per m$^2$ is calculated using the equation (µg/swab ÷ 0.09) ÷ 1000.

Following the completion of the field inspection, the samples were forwarded to a NATA registered laboratory for analysis. Analysis for lead content is performed using a nitric and hydrochloric acid digest followed by ICP-AES (Inductively Coupled Plasma – Atomic Emission Spectroscopy) quantification methods.

The result, when received from the laboratory, is converted to milligrams, and then divided by the area sampled (in square metres) to give a lead loading expressed in $mg/m^2$.

### 4.2.1 Lead Materials Assessment Criteria

As stated above, a lead in paint concentration greater than 1.0% w/w is considered to be lead based paint. Australian Standard AS4361.2, 2017 *Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings,* does not offer any general guidance on lead levels in dust but it does have surface dust lead loading values as acceptance levels after lead paint management activities. The acceptance levels for surface dust are:

- Interior floors 1 $mg/m^2$ (as lead);
- Interior window sills 5 $mg/m^2$ (as lead); and
- Exterior surfaces 8 $mg/m^2$ (as lead).

JKE uses the Australian Standard levels above as a guide in assessing lead dust risks. These figures can also be used to assess the risk of exposure from other lead sources. The acceptance level of lead in dust for exterior surfaces of 8 $mg/m^2$ is considered the most appropriate guideline for comparison for lead in ceiling dust.

## 4.3 Polychlorinated Biphenyls (PCBs) Containing Electrical Equipment

The major use of PCBs in the electrical industry has been inside transformers and capacitors. Transformers may include relatively small transformers inside electrical mains/fuse cabinets. Capacitors containing PCBs were installed in numerous types of fluorescent light fittings during the 1950's, 60's and 70's.

Representative samples of each type of electrical equipment identified within the existing structure were visually examined to assess whether the equipment is insulated with PCBs. Details on the make, type, capacitance, dimensions, date and power were recorded and checked with the ANZECC database of known PCB containing electrical equipment and the results of the review were noted.

## 4.4 Synthetic Mineral Fibre Containing Materials

Construction materials identified as potentially containing synthetic mineral fibre (SMF) were examined by site personnel and their location was noted. In the event that the materials were suspected to contain asbestos fibres, representative samples were obtained using hand tools by personnel wearing suitable PPE. The material samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the chain of custody (COC) record presented in Appendix C.

Following the completion of the field inspection, the samples were forwarded to a NATA registered laboratory for asbestos fibre analysis. The samples were analysed using stereo and polarising light microscopy methods with dispersion staining techniques.

# 5 RESULTS OF THE INSPECTION

The results of the inspection and subsequent laboratory analysis are summarised in the following sections. For specific locations and details of materials identified during the inspection, please refer to the Hazard Materials Register in Appendix B and the laboratory analysis report in Appendix C.

## 5.1 Asbestos

Not identified within the scope and limitations of the report.

## 5.2 Lead in Paint

Not identified within the scope and limitations of the report.

## 5.3 Lead in Accumulated Dust

Not identified within the scope and limitations of the report.

## 5.4 Polychlorinated Biphenyls (PCBs)

Not identified within the scope and limitations of the report.

## 5.5 Synthetic Mineral Fibre (SMF)

Materials containing SMF were identified in the form of vinyl floor tiles in the ground floor car park office. All materials were in good condition at the time of the inspection.

## 5.6 Site Access Limitations

Access to the main switch room on the north-east corner of the site was restricted as this room was locked. Access throughout the main car park was generally unrestricted within the scope and limitations of the report.

# 6 COMMENTS AND RECOMMENDATIONS

## 6.1 Asbestos Materials

Any materials presumed to contain asbestos must be treated as such.

Prior to refurbishment or demolition works this document must be provided as a register to the demolition/building contractor.

If previously unidentified materials (suspected of containing asbestos) are identified during the demolition phase, works should cease and the material should be inspected and classified by an experienced consultant. The area should be isolated and barricaded until the material has been classified as non-hazardous or removed and the area cleared.

All asbestos containing materials (and materials presumed to contain asbestos) must be removed in accordance with the regulations and codes outlined in Section 3 of this report.

## 6.2 Lead in Paint

Not identified within the scope and limitations of the report.

## 6.3 Lead in Accumulated Dust

Not identified within the scope and limitations of the report.

## 6.4 PCB Containing Electrical Equipment

Representative samples of each major type of fluorescent light fitting were visually inspected to determine which lights are fitted with PCB containing ballast capacitors.

No PCB containing capacitors within electrical equipment were identified during the site inspection.

If any metal cased capacitors are found during demolition works that were previously unidentified they should be treated as containing PCBs. Details on storing, conveying and disposing of PCB material or PCB wastes can be found in *Polychlorinated Biphenyls Management Plan*, Environmental Protection & Heritage Council, Revised Edition April 2003.

## 6.5 SMF Materials

Sources of SMF containing materials are present as insulation material within the roof space of the residential unit block. These SMF materials were in a stable condition at the time of the site inspection.

All SMF containing materials must be removed in accordance with the national Standard and code outlined in Section 3 of this report.

## 7 LIMITATIONS

The conclusions developed in this report are based on site conditions which existed at the time of the site assessment. They are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, and visual observations of the site and vicinity, together with the interpretation of available documents reviewed as described in this report.

Surveys are conducted in a conscientious and professional manner. The nature of the task however, and the likely disproportion between any damage or loss which might arise from the work or reports prepared as a result, and the cost of our services, is such that JKE cannot guarantee that all hazardous building materials have been identified and/or addressed.

Due to the possibility of renovations and additions to the building structures over time, hazardous building materials may have been hidden behind new walls and ceilings. Such areas were inaccessible during the inspection. If any suspect materials are found during further renovation of the buildings, the material should be sent for identification and expert advice sought.

Therefore while we carry out the work to the best of our ability, we totally exclude any loss or damages which may arise from services we have provided to our client and/or any other associated parties.

Unless specifically noted, the survey did not cover:

- Hidden and/or inaccessible locations such as in or under concrete slabs, wall cavities, hidden storage areas and the like.
- Lift wells and inaccessible/unidentified shafts, cavities and the like.
- Air conditioning, heating, mechanical, electrical or other equipment.
- General exterior ground surfaces and subsurface areas e.g. asbestos in fill/soil.
- Materials dumped, hidden, or otherwise placed in locations which one could not reasonably anticipate.
- Materials other than normal building fabric, materials in laboratories or special purpose facilities and building materials that cannot be reasonably and safely assessed without assistance.
- Areas where access was limited during the time of the site inspection as outlined in Section 6.
- Materials other than asbestos, lead, PCBs and SMF are generally outside the scope as identification can require specialised analysis/inspection techniques.

Where potentially hazardous materials are identified these are normally reported on to the best of the consultant's ability. Analysis is not normally included and there is no guarantee that all such materials have been identified and/or addressed.

All work conducted and reports produced by JKE are prepared for a particular Client's objective and are based on a specific scope, conditions and limitations, as agreed upon between JKE and the Client. Information and/or report(s) prepared by JKE may therefore not be suitable for any use other than the intended objective. No parties other than the Client should use any information and/or report(s) without first conferring with JKE.

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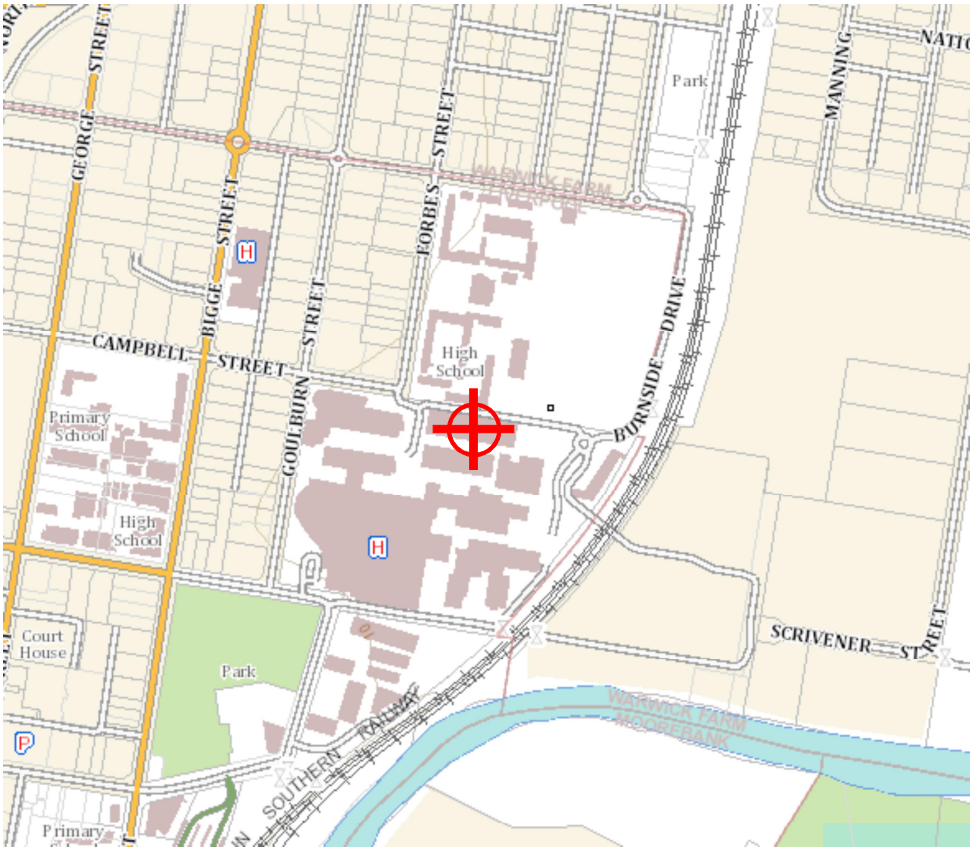
If you have any questions concerning the contents of this letter please do not hesitate to contact us.

# Appendix A: Report Figures





*Notes: Reference should be made to the report text for a full understanding of this plan.*

*Image Sources: https://maps.six.nsw.gov.au/ and UBD on disk v7.0.0*

| | |
|---|---|
| Title: | **SITE LOCATION PLAN** |
| Location: | P2 CAR PARK - LIVERPOOL HOSPITAL<br>GOULBURN STREET, LIVERPOOL, NSW |
| Report No: | E32456BD2-HAZ |
| Figure No: | 1 |
| | **JK ENVIRONMENTS** |

# Appendix B: Hazardous Building Materials Register

JKEnvironments

**LIVERPOOL HOSPITAL - P2 CAR PARK, GOULBURN STREET, LIVERPOOL, NSW**
**Hazardous Building Materials Register - September 2019**

| Location | Material Type | Sample ID | Laboratory result | Conditon | Friable / Non-Friable | Approximate extent | Recommendation | Is the area accessible | Photograph |
|---|---|---|---|---|---|---|---|---|---|
| **ASBESTOS MATERIALS** | | | | | | | | | |
| Level 3 fire stairs (labelled 'year of manufacture 2011' or 'installed 199 ') | Firedoors | Not sampled - visually inspected | Not suspected to contain asbestos | - | | | | | |
| Level 3 north-east corner | Distribution board | Not sampled - visually inspected | Not suspected to contain asbestos | | | | | | |
| Level 2 fire stairs (labelled 'year of manufacture 2011' or 'installed 199 ') | Firedoors | Not sampled - visually inspected | Not suspected to contain asbestos | - | | | | | |
| Level 2 all corners, lower wall infill panels | Flat fibre cement sheet | S1 | No asbestos detected | - | - | - | - | - | - |
| All levels, sampled on Level 2, concrete joins | Mastic | S2 | No asbestos detected | - | - | - | - | - | - |
| Level 2 all corners, upper wall infill panels | Flat fibre cement sheet | S3 | No asbestos detected | - | - | - | - | - | - |
| Level 2 north-east corner | Distribution board 2 | Not sampled - visually inspected | Not suspected to contain asbestos | | | | | | |
| Level 1 fire stairs (labelled 'year of manufacture 2011' or 'installed 199 ') | Firedoors | Not sampled - visually inspected | Not suspected to contain asbestos | - | | | | | |
| Level 1 north-east corner | Distribution board 1 | Not sampled - visually inspected | Not suspected to contain asbestos | | | | | | |
| Level 1 all corners, upper wall infill panels | Flat fibre cement sheet | S4 | No asbestos detected | - | - | - | - | - | - |
| Level 1 all corners, lower wall infill panels | Flat fibre cement sheet | S5 | No asbestos detected | - | - | - | - | - | - |
| Ground floor all corners, lower wall infill panels | Flat fibre cement sheet | S6 | No asbestos detected | - | - | - | - | - | - |
| Ground floor upper wall infill panel south east corner only | Flat fibre cement sheet | S7 | No asbestos detected | - | - | - | - | - | - |
| Ground floor fire stairs (labelled 'year of manufacture 2011' or 'installed 199 ') | Firedoors | Not sampled - visually inspected | Not suspected to contain asbestos | - | | | | | |
| Ground floor western store room / basement adjacent car park office (labelled 'year of manufacture 2011' ) | Firedoors | Not sampled - visually inspected | Not suspected to contain asbestos | - | | | | | |
| Ground floor western store room / basement adjacent car park office, southern wall | Compressed flat fibre cement sheet | S8 | No asbestos detected | - | - | - | - | - | - |

| Location | Material Type | Sample ID | Laboratory result | Conditon | Friable / Non-Friable | Approximate extent | Recommendation | Is the area accessible | Photograph |
|---|---|---|---|---|---|---|---|---|---|
| **ASBESTOS MATERIALS** | | | | | | | | | |
| Ground floor car park office floor covering | Grey coloured vinyl sheeting | S9 | No asbestos detected, synthetic mineral fibres detected | - | - | - | - | - | - |
| External ground floor fire control room, loose sheets | Flat fibre cement sheet | S10 | No asbestos detected | - | - | - | - | - | - |
| External, ground floor fire control room hydrant pipework | Gaskets | S11 | No asbestos detected | - | - | - | - | - | - |
| **SYNTHETIC MINERAL FIBRE (SMF)** | | | | | | | | | |
| Ground floor car park office floor covering | Grey coloured vinyl sheeting | S9 | No asbestos detected, synthetic mineral fibres detected | Generally intact | - | 30m$^2$ | Remove prior to demolition works | Yes |  |
| **LEAD IN PAINT** | | | | | | | | | |
| Level 3 throughout, steel beams | Peeling green paint | LP1 | <0.005% (less than the criteria of 1.0%) | - | - | - | - | - | - |
| Level 2 throughout, steel beams | Peeling green paint | Similar to LP1 | <0.005% (less than the criteria of 1.0%) | - | - | - | - | - | - |
| Level 3 throughout, steel beams | Peeling green paint | Similar to LP1 | <0.005% (less than the criteria of 1.0%) | - | - | - | - | - | - |
| External metal louvres and door frames | Peeling light blue paint | LP2 | 0.02% (less than the criteria of 1.0%) | - | - | - | - | - | - |
| **LEAD IN DUST** | | | | | | | | | |
| Level 3 northeast fire stairs, roof support beams | Dust | D1 | 1.1mg/m$^3$ (less than 8 mg/m$^3$) | - | - | - | - | - | - |
| **POLYCHLORINATED BIPHENYLS (PCBS)** | | | | | | | | | |
| Throughout car park | Single tube fluorescent light fitting | Modern fitting | Not suspected of housing PCB capacitors | - | - | - | - | - | - |

# Appendix C: Laboratory Report & COC Documents

**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 224839

## Client Details

| | |
|---|---|
| **Client** | Environmental Investigation Services |
| **Attention** | Katrina Taylor |
| **Address** | PO Box 976, North Ryde BC, NSW, 1670 |

## Sample Details

| | |
|---|---|
| **Your Reference** | **E32465BD2, Liverpool** |
| **Number of Samples** | 11 Material, 2 Paint, 1 Swab |
| **Date samples received** | 27/08/2019 |
| **Date completed instructions received** | 27/08/2019 |

## 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.

## Report Details

| | |
|---|---|
| **Date results requested by** | 03/09/2019 |
| **Date of Issue** | 29/08/2019 |

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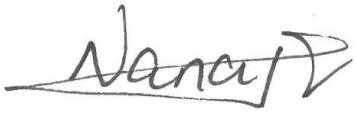
**Asbestos Approved By**
Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

**Results Approved By**
Loren Bardwell, Senior Chemist
Lucy Zhu, Senior Asbestos Analyst

**Authorised By**



Nancy Zhang, Laboratory Manager

| Asbestos ID - materials | | | | | | |
|---|---|---|---|---|---|---|
| Our Reference | | 224839-1 | 224839-2 | 224839-3 | 224839-4 | 224839-5 |
| Your Reference | UNITS | S1 | S2 | S3 | S4 | S5 |
| Date Sampled | | 27/08/2019 | 27/08/2019 | 27/08/2019 | 27/08/2019 | 27/08/2019 |
| Type of sample | | Material | Material | Material | Material | Material |
| Date analysed | - | 28/08/2019 | 28/08/2019 | 28/08/2019 | 28/08/2019 | 28/08/2019 |
| Mass / Dimension of Sample | - | 65x25x5mm | 35x20x11mm | 88x25x3mm | 71x19x5mm | 95x53x5mm |
| Sample Description | - | Pink layered fibre cement material | Grey rubbery mastic | Beige compressed fibre cement material | Beige compressed fibre cement material | Pink layered fibre cement material |
| Asbestos ID in materials | - | No asbestos detected<br>Organic fibres detected | No asbestos detected | No asbestos detected<br>Organic fibres detected | No asbestos detected<br>Organic fibres detected | No asbestos detected<br>Organic fibres detected |

| Asbestos ID - materials | | | | | | |
|---|---|---|---|---|---|---|
| Our Reference | | 224839-6 | 224839-7 | 224839-8 | 224839-9 | 224839-10 |
| Your Reference | UNITS | S6 | S7 | S8 | S9 | S10 |
| Date Sampled | | 27/08/2019 | 27/08/2019 | 27/08/2019 | 27/08/2019 | 27/08/2019 |
| Type of sample | | Material | Material | Material | Material | Material |
| Date analysed | - | 28/08/2019 | 28/08/2019 | 28/08/2019 | 28/08/2019 | 28/08/2019 |
| Mass / Dimension of Sample | - | 53x30x5mm | 142x25x9mm | 80x45x10mm | 40x26x3mm | 90x50x5mm |
| Sample Description | - | Pink layered fibre cement material | Beige compressed fibre cement material | Beige compressed fibre cement material | Grey vinyl tile & adhesive | Pink layered fibre cement material |
| Asbestos ID in materials | - | No asbestos detected<br>Organic fibres detected | No asbestos detected<br>Organic fibres detected | No asbestos detected<br>Organic fibres detected | No asbestos detected<br>Organic fibres detected<br>Synthetic mineral fibres detected | No asbestos detected<br>Organic fibres detected |

| Asbestos ID - materials | | |
|---|---|---|
| Our Reference | | 224839-11 |
| Your Reference | UNITS | S11 |
| Date Sampled | | 27/08/2019 |
| Type of sample | | Material |
| Date analysed | - | 28/08/2019 |
| Mass / Dimension of Sample | - | 52x7x3mm |
| Sample Description | - | Black rubbery mastic |
| Asbestos ID in materials | - | No asbestos detected<br>Organic fibres detected |

| Lead in Paint | | | |
|---|---|---|---|
| Our Reference | | 224839-12 | 224839-13 |
| Your Reference | UNITS | LP1 | LP2 |
| Date Sampled | | 27/08/2019 | 27/08/2019 |
| Type of sample | | Paint | Paint |
| Date prepared | - | 28/08/2019 | 28/08/2019 |
| Date analysed | - | 28/08/2019 | 28/08/2019 |
| Lead in paint | %w/w | <0.005 | 0.02 |

| Lead in swab | | |
|---|---|---|
| Our Reference | | 224839-14 |
| Your Reference | UNITS | D1 |
| Date Sampled | | 27/08/2019 |
| Type of sample | | Swab |
| Date prepared | - | 28/08/2019 |
| Date analysed | - | 28/08/2019 |
| Lead in Swabs | µg/swab | 100 |

| 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. |
| **Metals-004** | Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS. |
| **Metals-005** | Digestion of Dust wipes/swabs and /or miscellaneous samples for Metals determination by ICP-AES/MS and/or CV-AAS |

| QUALITY CONTROL: Lead in Paint | | | | | | Duplicate | | | Spike Recovery % | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Description | Units | PQL | Method | Blank | # | Base | Dup. | RPD | LCS-1 | [NT] |
| Date prepared | - | | | 28/08/2019 | [NT] | [NT] | [NT] | [NT] | 28/08/2019 | [NT] |
| Date analysed | - | | | 28/08/2019 | [NT] | [NT] | [NT] | [NT] | 28/08/2019 | [NT] |
| Lead in paint | %w/w | 0.005 | Metals-004 | <0.005 | [NT] | [NT] | [NT] | [NT] | 94 | [NT] |

| QUALITY CONTROL: Lead in swab | | | | | Duplicate | | | | Spike Recovery % | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Description | Units | PQL | Method | Blank | # | Base | Dup. | RPD | LCS-1 | [NT] |
| Date prepared | - | | | 28/08/2019 | [NT] | [NT] | [NT] | [NT] | 28/08/2019 | [NT] |
| Date analysed | - | | | 28/08/2019 | [NT] | [NT] | [NT] | [NT] | 28/08/2019 | [NT] |
| Lead in Swabs | µg/swab | 1 | Metals-005 | <1 | [NT] | [NT] | [NT] | [NT] | 94 | [NT] |

## 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 |

## Quality Control Definitions

| | |
|---|---|
| **Blank** | This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. |
| **Duplicate** | This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable. |
| **Matrix Spike** | A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist. |
| **LCS (Laboratory Control Sample)** | This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample. |
| **Surrogate Spike** | Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples. |

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

## Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

**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

# SAMPLE RECEIPT ADVICE

## Client Details

| | |
|---|---|
| **Client** | Environmental Investigation Services |
| **Attention** | Katrina Taylor |

## Sample Login Details

| | |
|---|---|
| **Your reference** | E32465BD2, Liverpool |
| **Envirolab Reference** | 224839 |
| **Date Sample Received** | 27/08/2019 |
| **Date Instructions Received** | 27/08/2019 |
| **Date Results Expected to be Reported** | 03/09/2019 |

## Sample Condition

| | |
|---|---|
| **Samples received in appropriate condition for analysis** | Yes |
| **No. of Samples Provided** | 11 Material, 2 Paint, 1 Swab |
| **Turnaround Time Requested** | Standard |
| **Temperature on Receipt (°C)** | 19.5 |
| **Cooling Method** | None |
| **Sampling Date Provided** | YES |

## Comments

Nil

Please direct any queries to:

| Aileen Hie | Jacinta Hurst |
|---|---|
| **Phone: 02 9910 6200** | **Phone: 02 9910 6200** |
| **Fax: 02 9910 6201** | **Fax: 02 9910 6201** |
| **Email: ahie@envirolab.com.au** | **Email: jhurst@envirolab.com.au** |

*Analysis Underway, details on the following page:*

**Envirolab Services Pty Ltd**
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| Sample ID | Asbestos ID - materials | Lead in Paint | Lead in swab |
|---|---|---|---|
| S1 | ✓ | | |
| S2 | ✓ | | |
| S3 | ✓ | | |
| S4 | ✓ | | |
| S5 | ✓ | | |
| S6 | ✓ | | |
| S7 | ✓ | | |
| S8 | ✓ | | |
| S9 | ✓ | | |
| S10 | ✓ | | |
| S11 | ✓ | | |
| LP1 | | ✓ | |
| LP2 | | ✓ | |
| D1 | | | ✓ |

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

## Additional Info

| |
|---|
| Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt. |
| Requests for longer term sample storage must be received in writing. |
| Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default. |
| TAT for Micro is dependent on incubation. This varies from 3 to 6 days. |

# SAMPLE AND CHAIN OF CUSTODY FORM

| | | |
|---|---|---|
| **TO:**<br>ENVIROLAB SERVICES PTY LTD<br>12 ASHLEY STREET<br>CHATSWOOD NSW 2067<br>P: (02) 99106200<br>F: (02) 99106201<br><br>Attention: Aileen | EIS Job Number: E32465BD2<br><br>Date Results Required: STANDARD<br><br>Page: 1 of 1 | **FROM:**<br>JKEnvironments<br>REAR OF 115 WICKS ROAD<br>MACQUARIE PARK, NSW 2113<br>P: 02-9888 5000 F: 02-9888 5001<br>Attention: Katrina Taylor |

| Location: | Liverpool | | | | Sample Preserved in Esky on Ice | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampler: | HL | | | | Tests Required | | | | | | | | |
| Date Sampled | Lab Ref: | Sample Number | Sample Container | Sample Description | Asbestos | Lead (mg/kg) | Lead (µg/swab) | | | | | | |
| 27/08/2019 | 1 | S1 | P | material | X | | | | | | | | |
| | 2 | S2 | P | material | X | | | | | | | | |
| | 3 | S3 | P | material | X | | | | | | | | |
| | 4 | S4 | P | material | X | | | | | | | | |
| | 5 | S5 | P | material | X | | | | | | | | |
| | 6 | S6 | P | material | X | | | | | | | | |
| | 7 | S7 | P | material | X | | | | | | | | |
| | 8 | S8 | P | material | X | | | | | | | | |
| | 9 | S9 | P | material | X | | | | | | | | |
| | 10 | S10 | P | material | X | | | | | | | | |
| | 11 | S11 | P | material | X | | | | | | | | |
| | 12 | LP1 | P | paint | | X | | | | | | | |
| | 13 | LP2 | P | paint | | X | | | | | | | |
| | 14 | D1 | P | dust (swab) | | | X | | | | | | |

ENVIROLAB

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

Job No: 224839
Date Received: 27/8/19
Time Received: 16:49
Received by: JD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

| Remarks (comments/detection limits required): | Sample Containers: |
|---|---|
| PLEASE REPORT LEAD IN PAINT AS mg/kg | G - 250mg Glass Jar<br>A - Ziplock Asbestos Bag<br>P - Plastic Bag |

| Relinquished By: | Date: | Time: | Received By: | Date: |
|---|---|---|---|---|
| | | 16:49 | Jason Day EIS Sydney | 27/8/19 |