Sydney Environmental Group

Hazardous Building Materials Survey Report

Portion of Building 28, Medical Gas Loading Bay, Royal Prince Alfred Hospital Camperdown NSW

Sydney Local Health District (c/- Cardno)

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EXECUTIVE SUMMARY

Sydney Environmental Group Pty Ltd (SE) was engaged by Sydney Local Health District (c/- Cardno (NSW) Pty Ltd) (the client), to undertake a Hazardous Building Materials Survey of the Medical Gas Loading Bay, Portion of Building 28, RPA Hospital, Camperdown NSW (hereafter referred to as 'the site') (refer to **Figure 1**) prior to the commencement of demolition and expansion works.

SE has the following project appreciation:

- The structures within the site are proposed for refurbishment works comprising the refurbishment of the medical gas loading bay; and
- A hazardous building materials survey is required prior to refurbishment works as part of the RPA Hospital Redevelopment, Campus Infrastructure works REF#5 Package (Proposed Western Campus Medical Gas Compound Expansion and Associated Works), to identify and document hazardous building materials within the structures situated within the site.

The objectives of this investigation were to:

- Confirm the presence/ absence of hazardous building materials (HBM) within accessible areas of the structures on site;
- Provide a qualitative risk assessment of the hazardous building materials identified (if any);
- Provide recommendations on control measures and strategies for removal; and
- Prepare a Hazardous Materials Register for the site to ensure legislative compliance.

The scope of works undertaken to address the investigation objectives, included:

- Fieldwork, including investigation of subject areas;
- Collection of suspect building materials (as required);
- Analysis of samples by a NATA accredited laboratory;
- Provide recommendations for the removal of hazardous building materials where identified; and
- Prepare a Hazardous Building Materials Register for the site, detailing location and type of HBMS present within the site.

For this report, HBM are limited to the following:

- Asbestos Containing Materials (ACM);
- Lead Containing Paint (LCP);
- Lead Containing Dust (LCD);
- Polychlorinated Biphenyls (PCBs);
- Synthetic Mineral Fibres (SMF); and
- Ozone Depleting Substances (ODS).

A summary of hazardous building materials identified within the site is provided in **Table 1.1** below. For an exhaustive list of hazardous building materials identified, refer to **Attachment 3 – Hazardous Building Materials Register**).

Table 1.1 Summary of Hazardous Building Materials Identified

Item	Areas Identified
Asbestos Containing Materials (ACM)	ACM was not suspected, identified or presumed to be present within the site
Lead Containing Paint (LCP)	LCP was not suspected, identified, or presumed to be present within the site
Lead Containing Dust (LCD)	LCD was not suspected, identified, or presumed to be present within the site
Polychlorinated Biphenyls (PCB)	All fluorescent light fittings are presumed to contain PCB capacitors.
Synthetic Mineral Fibres (SMF)	SMF was not suspected, identified or presumed to be present within the site
Ozone Depleting Substances (ODS)	ODS were not suspected, identified, or presumed to be present within the site

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LIST OF ABBREVIATIONS

ACM	Asbestos Containing Materials
EPA	Environmental Protection Authority
LCD	Lead Containing Dust
LCP	Lead Containing Paint
m	Metres
m^2	Square Metres
PCBs	Poly-Chlorinated Biphenyls
SE	Sydney Environmental Group Pty Ltd
SMF	Synthetic Mineral Fibres
ODS	Ozone Depleting Substances

1 INTRODUCTION

1.1 Background

Sydney Environmental Group Pty Ltd (SE) was engaged by Sydney Local Health District (c/- Cardno (NSW) Pty Ltd) (the client), to undertake a Hazardous Building Materials Survey of the Medical Gas Loading Bay, Portion of Building 28, RPA Hospital, Camperdown NSW (hereafter referred to as 'the site') (refer to **Figure 1**) prior to the commencement of demolition and expansion works.

1.2 Project Description

The proposed refurbishment activities comprise alterations and additions to the Capital Infrastructure and Engineering (CI & E) building loading dock located off Rochester Street in the RPA Hospital West Campus. Specifically, the works are to establish a reconfigured and expanded Medical Gas Compound (MGC) comprising the following works:

- Demolish three (3) existing oxygen tanks;
- Demolish existing shed structure (roof, walls and slab to 300mm below existing ground level);
- Removal of redundant services;
- Removal of adjacent trees;
- Existing road surface to be saw cut;
- New MGC enclosure comprising fire rated walls and sliding door to house new main primary and secondary oxygen tanks (60kL), emergency oxygen tank (20kL) and new vaporisers;
- Install new hard stand on road for filling point;
- Install new bollards;
- Install new roof mounted fans;
- New oxygen pipe distribution system infrastructure within confines of MGC area.

1.3 Objectives

The objectives of this investigation were to:

- Confirm the presence/ absence of hazardous building materials (HBM) within accessible areas of the residences;
- Provide a qualitative risk assessment of the hazardous building materials identified (if any);
- Provide recommendations on control measures and strategies for removal; and
- Prepare a Hazardous Materials Register for the site to ensure legislative compliance.

1.4 Scope of Work

The scope of works undertaken to address the investigation objectives, included:

- Fieldwork, including investigation of subject areas within the residences (or portions thereof);
- Collection of suspect building materials (as required);
- Analysis of samples by a NATA accredited laboratory;
- Provide recommendations for the removal of hazardous building materials where identified; and
- Prepare a Hazardous Building Materials Register for the site, detailing to location and type of HBMS present within the site.

1.5 Previous Relevant Reports

SE were not provided with any previous relevant reports pertaining to the structures examined.

1.6 Access Restrictions / Areas Not Accessed

It is possible that hazardous building materials may have been concealed within restricted and/or inaccessible areas/voids at the time of the survey. These areas include:

Restricted Areas:

- Locations behind locked doors;
- In-set ceilings or wall cavities;
- Areas only accessible by dismantling equipment or performing minor localised demolition works;
- Service shafts, ducts etc concealed within the building structure;
- Height restricted areas and surfaces greater than three (3) metres in height;
- Voids or internal areas of plant, equipment, air-conditioning ducts, etc;
- Inaccessible areas, such as voids and cavities created and intimately concealed within the building structure. These voids are only accessible following major demolition works; and
- Sub-floor space.

2 SITE IDENTIFICATION

The site identification details and associated information are presented in **Table 2.1**.

Table 2.1 Site Identification Information

Attribute	Description
Street Address	Medical Gas Loading Bay, Portion of Building 28, RPA Hospital, Camperdown NSW
Lot and Deposited Plan (DP)	Portion of Lot 4 DP 880430
Geographical Coordinates	33°53'27.2" S 151°10'52.9" E (Centre of site)
Site Area	≈ 300 m^2
Local Government Area (LGA)	City of Sydney
Subject Areas:	Medical Gas Loading Bay

The general layout and boundary of the site is set out in **Figure 1**.

3 FIELDWORKS

3.1 Survey Methodology

Hazardous Material (hazmat) surveys are performed using a risk assessment approach in agreement with the legal regulations and current Codes of Practice. The hazmat surveys involve the site identification and inspection of Asbestos Containing Materials (ACM), Synthetic Mineral Fibres (SMF), lead based paint systems, Lead Containing Dust (LCD), Polychlorinated Biphenyls (PCBs) when applicable.

The Occupational Hygienist performs a visual inspection within all accessible areas to identify the hazardous building materials. When a potentially hazardous building material is suspected, a sample of the material is collected and sent to a NATA accredited laboratory for the required analysis. Where identical suspected hazardous materials are detected at different locations, only visual confirmation is made rather than the collection of additional samples. The following observations were recorded at the time of the inspection:

- Location;
- Description;
- Quantity;
- Condition; and
- Friability (where applicable).

Additionally, the survey will include minor destructive sampling within the properties. This is to allow the occupational hygienist to accurately determine which building materials may contain hazardous materials by collecting an adequate sample for laboratory analysis. Following the completion of sampling, any minor holes/scratches made by the occupational hygienist at the property will be sealed with a clear adhesive spray to contain and potential hazardous material that was disturbed during sampling.

3.2 Hazardous Building Materials Identification

3.2.1 Asbestos Containing Materials

Asbestos is defined as the fibrous form of mineral silicates. There are two major groups of asbestos:

- Serpentine group minerals: chrysotile (white asbestos); and
- Amphibole group minerals: amosite (brown asbestos), crocidolite (blue asbestos) and minor forms including actinolite, tremolite and anthophyllite.

Asbestos minerals have separable long fibres that are strong and flexible enough to be spun and woven and are heat resistant. Because of these characteristics, asbestos has been historically used for a wide range of manufactured goods, mostly in building materials, friction products, heat-resistant fabrics, gaskets, and coatings.

Asbestos mainly affects the lungs; breathing in high levels of asbestos fibres over time can lead to a number of diseases and cancers (asbestos is a known carcinogen). The aim is to minimise the risk of exposure to ACM. This management plan aids in ensuring that ACM in the workplace are managed in such a way that they do not become damaged and increase the risk of exposure.

During the survey, the occupational hygienist will collect samples of suspected asbestos containing materials (ACM). If sampling is not possible for whatever reason, the occupational hygienist may presume an item to contain asbestos. For example, most power distribution boxes found in older structures (built prior to 1983) will have an asbestos backing board, however due to the electrical hazard present, a sample will not be taken but the material will be presumed to contain asbestos.

3.2.2 Lead Containing Paint (LCP)

Lead is a naturally occurring metal. Pure lead can combine with other substances to form various lead compounds. Lead based paint is defined as “Any paint containing greater than 0.1% by dry weight of lead” in the Australian/New Zealand Standard (AS/NZS) 4361.2:2017 Guide to hazardous paint management: Part 2: Lead paint in residential and commercial buildings.

Distinct paint systems are initially tested with a 3M 'leadcheck' swab. Should the swab return a positive result for lead, then the paint will be sampled by the occupational hygienist for laboratory analysis. Paint samples returning a result of above 0.1% w/w lead are classified as lead paint.

3.2.3 Lead Containing Dust (LCD)

Lead dust is found everywhere in the urban environment, resulting from air, water, and soil pollution from industrial processes, house renovations, and as a by-product of the combustion of leaded fuels. Over an extended period of time, the lead from these sources may have contaminated the dust found in the ceiling voids of most houses examined. Significant lead levels are likely to occur in the ceilings of older homes, near major roads, or near current or previously heavily industrialised areas.

As a consequence of lead contamination, samples will be collected where significant amounts of dust are observed during the inspection. This will generally be limited to the ceiling void space.

In the absence of a legislative standard for classifying lead containing dust as hazardous within a ceiling space, SE have adopted a threshold criterion of 10 µg/cm^2 or 300 mg/kg for lead in dust which is considered appropriate for demolition of structures. An adjustment of the threshold criteria may be undertaken based on further risk assessment.

3.2.4 Polychlorinated Biphenyls (PCBs)

PCBs are a group of chlorinated organic compounds. PCBs are very stable chemicals that resist change over time and temperature variation. They are fire resistant and very good insulators. Reference is made to the document 'Identification of PCB-Containing Capacitors' – Australian & New Zealand Environment and Conservation Council (ANZECC), 1997 for identification of PCB-containing capacitors'.

The major use of PCBs has been as an insulating fluid inside transformers and capacitors. These transformers and capacitors range in size but generally are encased within a cylindrical or rectangular metal casing. PCBs have been commonly used in closed or semi-closed systems such as electrical transformers, heat transfer systems, hydraulic fluids, feeder cabling and in the metal case capacitors to fluorescent lights, sodium vapour and mercury vapour lights, and starter capacitors to electrical motors. PCBs will generally only be found in capacitors made before the late 1970's (though some electrical equipment imported after this period may contain PCBs). High voltage and medium voltage feeder cables prior to the use of PVC insulation, particularly the armoured type of cabling may contain PCBs in concentrations sufficient to be a scheduled PCB waste.

For de-energised premises, all accessible fluorescent light fittings are visually inspected for PCB containing capacitors or PCB containing ballast, listed in '*Scheduled Waste Management: Identification of PCB-containing Capacitors* – (ANZECC. 1997).

Where premises are energised, direct inspection of these components is not possible due to the significant electrical hazard present. Under these circumstances, all fluorescent light fittings are treated as potentially containing PCB capacitors until proven otherwise.

3.2.5 Synthetic Mineral Fibres

SMF is a generic term used to collectively describe a number of amorphous (non-crystalline) fibrous materials, commonly referred to as "Man Made Mineral Fibres" (MMMF).

SMF materials include fibreglass, rockwool and ceramic fibre based products. These products are used in a number of areas throughout buildings. These materials are generally used as insulation within ceilings and walls, as well as heating hot water pipework and associated mechanical equipment.

SMF materials are classified as bonded and unbonded materials. Unbonded SMF material includes loose fill fibreglass or rockwool dry wall or ceiling insulation, and sprayed rockwool to structural steel and acoustic finishes. Bonded SMF insulation materials include sectional fibreglass and rockwool pipe insulation; ceiling batts, duct blankets (lined and unlined with mesh/foil), dry wall batt insulation and acoustic mineral fibre ceiling tiles etc.

3.2.6 Ozone Depleting Substances

No Ozone depleting substances (ODSs) were found on site, following information is provided for future reference.

ODSs refer to those substances that deplete the ozone layer and are widely used in refrigerators, air conditioners, fire extinguishers, dry cleaning and cleaning solvents, electronic equipment and as agricultural fumigants.

In 1987, an international protection agreement was made, named the Montreal Protocol, which sets out a schedule that countries must follow to phase out ODSs based on their effect on the earths' ozone layer. In Australia, the Commonwealth Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 controls the manufacture, import and export of ODSs in accordance with the Montreal Protocol.

The release of large amounts of ODSs in an enclosed area is harmful to humans as it can act as an asphyxiator by reducing the amount of oxygen in the air. Liquid refrigerant is extremely cold and can burn your skin. SE will identify any HVAC system and presume it to contain ODS. All removal or refurbishment works that relating to HVAC systems must be undertaken by a licensed air-conditioning technician with experience working with and properly disposing of refrigerant fluids including ODS.

4 HAZARDOUS BUILDING MATERIALS MANAGEMENT PLAN

4.1 Regulatory Framework

The success of any option involving hazardous materials remaining in-situ is dependent on the need to ensure the hazardous material remains undisturbed and in good condition.

Accordingly, the purpose of this Hazardous Building Materials Management Plan (HBMMP) is to ensure that all practicable steps are taken to prevent, or minimise the risk of exposure to hazardous materials, for all occupants of the site. This is driven by state legislation and is achieved through the identification and listing of the known and typical locations of hazardous materials and the implementation of appropriate control measures including engineering and administrative systems.

Hazardous materials to be managed by this plan are as follows:

- Asbestos-Containing Materials (ACM);
- Synthetic Mineral Fibre (SMF)-containing materials;
- Lead-containing paint (LCP);
- Lead-containing dust (LCD);
- Polychlorinated Biphenyls (PCBs); and
- Ozone Depleting Substances (ODSs).

To accomplish this, the HBMMP specifies work practices and procedures to:

- Maintain the hazardous materials in good condition;
- Ensure implementation of hazard control strategies;
- Nominate the management plan controller;
- Monitor the condition of the hazardous materials; and
- Minimise the possibility of accidental damage or exposure to hazardous materials.

The HBMMP must be made available to, and understood by, all participants involved in the management and operation of the site. The appropriate personnel at the site should be aware of the presence of the hazardous materials and the need to ensure they remain undisturbed and in good condition. They should also understand their role in achieving this.

4.2 Hazardous Building Materials Management Plan Objectives

The HBMMP represents an integrated risk management approach to ensure that all practicable steps are taken to prevent or minimise the risk of exposure to hazardous materials in the buildings located at the Site.

The HBMMP therefore:

- Outlines the necessary actions to control the risk as required by state legislation;
- Identifies and describes the administrative line of authority for the site, outlining responsibilities, procedures and systems for the effective management and control of hazardous materials at the site;
- Establishes a timetable for the review and assessment of the hazardous materials;
- Where appropriate, instigates a work permit system, which ensures that any proposed maintenance, installation, alteration, or renovation at the site are notified to the Management Plan Controller;
- Requires that all participants involved in the management and operations at the site are clearly informed and where necessary trained to manage the hazardous material risks; and
- Forms an integral part of an effective HBMMP. The HBMMP and Hazardous Materials Register must be made available as required for inspection by tenants, other employers, employees, union representatives, government representatives, contractors and maintenance personnel.

4.3 Legislative Requirements

This HBMMP is designed to assist the client in fulfilling its general obligation to ensure the health and safety of employees, contractors, visitors and others accessing the site. The HBMMP also addresses specific hazardous materials related legislative requirements and guidelines in approved industry standards.

Chapter 8, Part 8.3 Management of Asbestos and Associated Risks of the Work Health and Safety Regulation 2017 (NSW) states that a person with management or control of a workplace must ensure that a register (an asbestos register) is prepared and kept at the workplace. All asbestos or ACM at the workplace are to be identified by a competent person as far as is reasonably practicable. Asbestos sample analysis must be carried out by a National Association of Testing Authorities (NATA) Australia accredited laboratory for the relevant test method (Australian Standard AS4963-2004).

The person responsible for the management of the workplace must ensure the review of the asbestos register and management plan is conducted as necessary. This should take place if further ACM are identified, if ACM are removed, disturbed or encapsulated and/or at least once every 5 years. A health and safety representative has the authority to request a review of the asbestos register and management plan if they believe that the health and safety of an employee is at risk.

The personnel responsible for the management plan must ensure that the document is available for review to contractors, health and safety representatives and workers who are and/or intend to be conducting work within the workplace.

The following legislation and industry standard documentation are relevant to this HBMMP and are to be construed as forming an integral part of this HBMMP:

- Work Health and Safety Act 2011 (NSW);
- Work Health and Safety Regulation 2017 (NSW);
- Code of Practice: How to Safely Remove Asbestos (SafeWork NSW, 2019);
- Code of Practice: How to Manage and Control Asbestos in the Workplace (SafeWork NSW, 2019);
- Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006 (1990)];
- AS 4361.2 Guide to lead paint management – Part 2 Residential and commercial buildings, Standards Australia, 2017 (previously AS 4361.2-2017 Australian Standard Guide to lead paint management Part 2: Residential and commercial buildings);
- ANZECC Polychlorinated Biphenyls Management Plan, Revised Edition 2003; and
- NSW Protection of the Environment Operations Act 1997.

4.4 Remedial Options

A range of measures are available for the control of hazardous materials risks. The selection of the appropriate control measures are based on the assessed risk for each specific location. These measures may include:

- Leave and maintain in existing condition;
- Repair and maintain in good condition;
- Encapsulate/seal using sealant paints, adhesive or mastic or providing a barrier such as a box enclosure or steel cladding;
- Remove/decontaminate by approved methods under controlled conditions;
- Safe Working Practices and Safe Systems of Work; and
- Labelling of ACM that are to remain in-situ should be undertaken where practical to ensure that the asbestos materials are not damaged inadvertently by maintenance contractors etc.

All known or suspected ACM should be identified with warning labels. ACM and other hazardous materials should be re-inspected on a 5-yearly basis (or earlier if the materials are damaged or removed) to ensure the materials are kept in good condition and that there is no damage to the materials (refer to Section 3.2 of the Code of Practice: How to Manage and Control Asbestos in the Workplace (SafeWork NSW, 2016)).

5 HAZARDOUS BUILDING MATERIALS ABATEMENT STRATEGIES

The following section outlines general remedial methodologies for hazardous building materials.

5.1 Asbestos Containing Materials

Materials identified as containing asbestos should be removed from any proposed work area or satisfactorily contained prior to commencement of refurbishment or demolition works. It is recommended that a specific scope of works document be produced to manage the asbestos abatement project.

The removal of asbestos must be controlled within a strict asbestos removal technical specification. This specification should include:

- Work area isolation (barrier protection, buffer zone);
- Removal methods (friable/non-friable);
- Contamination control methods (negative air pressure/decontamination procedures); and
- Health and safety procedures (respiratory protection, working at heights, scaffolding).

Asbestos abatement works must be performed in accordance with all legislative requirements. The statutory requirements for asbestos removal are prescribed in the NSW Work Health and Safety Regulation 2017 (Part 8.7). The Code of Practice: How to Safely Remove Asbestos (SafeWork NSW, 2016) provides guidelines for the safe removal of friable and non-friable asbestos-containing materials.

Depending on the nature of the abatement operations, it may be necessary to engage a licensed asbestos contractor.

A suitably qualified consultant must provide independent verification of the work practices, engineering controls and standard of workmanship employed during removal operations.

SE note that due to the presence of confirmed and presumed asbestos containing fire and regular doors, that each door be assessed on a case by case basis prior to removal or works involving penetrating the door. Should removal be required, a Class A licensed removalist must be engaged.

5.2 Lead Paint and Dust

The health risk associated with lead occurs via an accumulative effect within the human body. Depending on the amount of exposure, side effects of lead poisoning would not be apparent for many years. It is therefore recommended that workers associated with lead processes have regular medical examinations to monitor the amount of lead in their system.

The most common exposure risks faced by workers are the inhalation of lead dust or fumes. The creation of the hazards generally relates to abrading or burning lead or lead coated surfaces. Other common sources of lead dust or fumes are as follows:

- Lead based paints – when removing paint by sanding or heat (e.g. creating dust), or when welding; or cutting steel coated with lead or lead based paints;
- Welding, oxy cutting of steel coated with lead based paint or primer; and
- Dismantling of equipment containing lead based paint.

The abatement of lead painted surfaces and reduction of potential lead exposure risks to workers and the environment requires a review of the potential exposure pathways to lead dust during the abatement project. Local authority requirements, public safety and health requirements, site preparation, waste disposal and contamination control all need to be fully considered therefore, prior to the commencement of the abatement project.

Lead exposure is likely where painted surfaces are to be removed or treated by mechanically sanding, scraping or other cleaning techniques creating airborne dust and fall-out contaminating ground and building surfaces. Accordingly, lead abatement work must fully contain and control airborne emissions and remove resultant lead

contaminated dusts and sludge from work surfaces. The painting contractors must prepare a waste management plan prior to any lead paint management work.

Workers must also be fully protected against exposure with personnel protective clothing and respiratory protection and employers of these workers must fully comply with the Work Health and Safety Regulation 2017 (NSW), including organising medical testing of their employees.

The Australian Standard AS 4361.2 Guide to lead paint management – Part 2 Residential and commercial buildings, Standards Australia, 2017 provides guidance for the management of lead-paint and lead-dust on non-industrial structures such as residential, commercial and public buildings.

The options available for the management of lead painted surfaces include:

- Report and Document;
- Stabilise the paint;
- Carrying out lead paint and lead dust abatement (removal); and
- A combination of these options.

5.2.1 Report and Document

This is only appropriate for painted surfaces that are generally inaccessible and are in sound condition and will not be disturbed during the refurbishment of the site.

The presence of lead paint, even under existing non-lead painted surfaces should be documented and recorded and regular inspection conducted for evidence of deterioration.

5.2.2 Lead Paint Stabilisation

The easiest option in dealing with lead painted surfaces is to over-paint using a lead free paint. This can only be done effectively where the existing lead paint is in good condition and does not require extensive preparation for re-painting. Below is a summarised procedure of lead paint encapsulation:

- Remove all loose surface material in accordance with lead paint removal procedures;
- Remove surface gloss with a de-glossing solution;
- Ensure new paint is compatible with existing paint, i.e.: no leaching of lead compounds from old to new surfaces;
- Oil based paint is preferable;
- Carry out over-painting in accordance to Australian Standard AS 2311-1992 The Painting of Structures;
- Undercoat sealer be applied;
- Two (2) coats of topcoat; and
- Monitor surface for any signs of deterioration.

Usually, the existing paint will need to be washed to remove grime and dirt using sugar soap (tri-sodium phosphate) or removing a glossy surface by wet sanding with a de-glossing solution etc. Small areas of flaking paint will require rectification prior to stabilisation.

5.2.3 Lead Paint and Lead Dust Removal

In the event that some surfaces are in poor condition and over-painting is not appropriate, the lead paint will need to be removed. Any lead paint & lead dust removal must be carried out with the appropriate guidelines for any lead work activity involving machine sanding, grinding, discing, buffing of surfaces coated with paint containing greater than 0.1% of lead by dry weight.

Lead processes involving such activities with lead paint will require:

- Enclosure to prevent escape of lead bearing dusts;
- Adequate signage around work area;

- Appropriate personal protective equipment;
- Personal hygiene – no smoking, washing of hands prior to eating etc.;
- Removal of lead paint via wet sanding or chemical stripping;
- Vacuuming of all surfaces (with a HEPA filter fitted) within and including the enclosure to remove all remaining traces of lead paint;
- Decontamination;
- Clearance testing via surface soil or dust sampling; and
- Medical surveillance of lead workers (blood tests).

Any work processes involving lead paint must be undertaken in a manner to ensure that no worker is exposed to lead at concentrations above the Workplace Exposure Standard (WES) of 0.15 mg/m^3 over an eight-hour day. Furthermore the levels should not exceed 0.03 mg/m3 at the boundary of the regulated area, i.e. boundary of area surrounding a lead paint worksite where it can be reasonably expected not to exceed the ES.

In a lead abatement operation, it is recommended that a certified lead abatement contractor be engaged (as recommended by the Federation of Master Painters Australia or the Painting Contractors Certification Program). This contractor should then perform any lead abatement work. Contractors involved in lead paint removal must have medical surveillance, including blood tests, conducted in accordance with the regulations.

A detailed work procedure should be reviewed based on assessment of options available to the builder for the various painted surfaces and nature of refurbishment activities to be conducted.

5.3 Synthetic Mineral Fibres

In all cases, it is essential that SMF materials be handled appropriately to control dust and debris, as they are irritating to the skin and mucous membranes. SMF fibres are generally thick and will scratch and puncture the skin causing rashes and irritation to the skin, nose and eye if exposed to high levels of dust and debris. Protective eyewear therefore should be worn if handling SMF materials above the head, i.e. entering ceiling cavities.

Action should be taken on a continuing basis to achieve the lowest workable exposure levels of SMF. The provision of engineering controls, close attention to plant cleanliness, in particular within plant rooms and air handling units, and the containment of waste material may achieve this. Additionally, the use of binders or work practices which reduce the liberation of fibres and the provision of appropriate personal protective equipment can help reduce SMF levels to personnel and the environment.

Caution is required when handling SMF products in order to minimise airborne SMF fibre levels. It is recommended that the code of practice “Code of Practice for the Safe Use of Synthetic Mineral Fibres NOHSC:2006 (1990)]” be closely adhered to when handling such materials.

Essentially, SMF materials should be handled in such a way as to minimise dust and disturbance of the materials. Where SMF materials are installed or removed, then suitable controls and appropriate personal protection are to be provided. Consultation should be sought with regard to appropriate procedures prior to the handling of such materials

- If SMF insulation is to be disturbed or removed, control monitoring for airborne SMF in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne SMF [NOHSC:3006(1989)] should be carried out by qualified occupational hygienist during the removal operations and sample analysis should be undertaken by a NATA accredited laboratory to ensure the method of control is effective;
- Use hand tools, not power tools, and wet or dampen the material before cutting. If power tools are used, local exhaust ventilation should be installed;
- Protective equipment must be used whenever other means cannot keep the exposure level below the exposure standard. It should include the appropriate type of mask and clothing. The code of practice has a detailed guide to selecting respiratory protection; and
- At the end of removal operations, a clearance inspection and sampling program should be carried out and a Clearance Certificate issued.

Note that SMF’s are currently not on the schedule of substances requiring health surveillance.

5.4 Polychlorinated Biphenyls

The management of PCBs is outlined in the policy document issued by ANZECC Polychlorinated Biphenyls Management Plan, November 1996. This plan sets out timelines for the eventual phase out and replacement of PCBs within workplaces in Australia.

The Environmental Protection Authority has deemed PCBs to be a prescribed waste. Proper procedures must be undertaken when disposing of items containing PCBs. Registered waste disposal companies are licensed to dispose of PCBs.

Not all materials containing PCBs are required to be removed. The management strategy depends on the priority of the area in which the material is located and the classification of the PCB containing material. The PCB concentration classifies a material as one of the following:

- PCB Free – materials and wastes are defined for the purposes of the PCB Management Plan as those materials or wastes containing PCBs at concentrations of 2 mg/kg or less;
- Scheduled PCB materials and wastes containing PCBs at levels greater than or equal to either 50 mg/kg or 50 g; and
- Non-Scheduled PCB materials or waste containing PCBs at concentration levels between those defined above.

Prior to any removal of PCBs, workers involved should be suitably trained in the health and safety procedures and the use of Personal Protective Equipment (PPE)

- The following PPE should be worn when handling items containing PCBs:
  - Nitrile Gloves;
  - Eye Protection; and
  - Disposable Overalls.
- The PPE should be worn when removing capacitors from light fittings in case of PCB material leaking from the capacitor housing;
- A registered electrical contractor should conduct all electrical works;
- Generally, metal-cased capacitors contain PCBs while plastic-cased capacitors usually do not, however all leaking capacitors should be treated as if they contain PCBs unless proven otherwise.
- Remove diffuser and light tubes;
- Remove cover panels carefully and inspect the internals of the light fitting for signs of leakage from the capacitor;
- Disposable overalls and gloves should be disposed of as contaminated material on completion of work;
- Wash hands in warm soapy water before eating, drinking, smoking, handling food or drink or using toilet facilities (even if gloves were worn);
- If skin contact with PCB material occurs, the liquid shall be removed immediately with soap and water and waste contained and disposed of as PCB containing waste (depending on quantity of spillage); and
- If PCB material has leaked from the capacitor onto the cover plate or diffuser, the spillage must be wiped with an absorbent cloth soaked with some white spirit or kerosene, and the cloth then disposed of as PCB waste. Leaking capacitors should first be placed in a plastic bag with loose vermiculite placed at the bottom to absorb any spillage/leakage.

5.5 Ozone Depleting Substances

Containers holding ODSs should be labelled to provide ready identification by emergency teams. Appropriate signage may also be required under the relevant dangerous goods storage legislation.

Service personnel should refer to the relevant Material Safety Data Sheets when handling ODSs.

Containers and valves should be handled with care to avoid any damage that could lead to a discharge.

Disposal of an ODSs should be completed in a way that prevents their emissions into atmosphere.

6 CONCLUSIONS AND RECOMMENDATIONS

Based on SE's assessment of the desktop review information, fieldwork data and laboratory analytical data, SE make the following conclusions:

- A copy of the hazardous building materials register should be made readily available to all contractors conducting works on the site;
- Any hazardous building materials identified and recorded in the register that are likely to be impacted by refurbishment works are to be removed prior to refurbishment works;
- Remove all hazardous building materials identified and recorded in the register prior to any major demolition works of the structures identified within the site; and
- Should any previously unidentified suspected hazardous building materials be identified during demolition, works should cease, and the materials should be inspected by an experienced occupational hygienist prior to the recommencement of works. Sydney Environmental Group can be contacted on 1300 884 163.

Based on these conclusions and the information gathered during the assessment, SE make the following recommendations:

- No asbestos containing materials were presumed, suspected, or identified within the site.
- No Lead Containing Paint (LCP) was identified, presumed, or suspected to be present within the site;
- No Lead Containing Dust (LCD) was identified, presumed, or suspected to be present within the site;
- All fluorescent light fittings are presumed to contain PCB capacitors. Further visual assessment of capacitors may be undertaken once assets are de-energised and made-safe. Reference can be made by contractors removing fluorescent light fittings to ANZECC. (1997). 'Identification of PCB-containing Capacitors: An Information Booklet for Electricians and Electrical Contractors' to determine if capacitors contain PCBs. Disposal of PCB containing capacitors is to be made to a licensed receiving facility;
- All air conditioning, ducting, and insulation material is presumed to contain SMF. Caution is required when handling SMF products in order to minimise airborne SMF fibre levels. It is recommended that the code of practice "Code of Practice for the Safe Use of Synthetic Mineral Fibres NOHSC:2006 (1990)]" be closely adhered to when handling such materials;
- As a conservative measure to eliminate the risk of unintended ODS release to the environment, removal of refrigerant gases for all HVAC equipment is to be undertaken by a qualified HVAC technician prior to removal of HVAC equipment; and
- Given the age of the building, previously unidentified HBMS may be encountered in areas not fully accessible during the survey (i.e. void spaces behind walls, internal componentry of equipment). Care is to be taken during all refurbishment works, and an occupational hygienist engaged should any unexpected hazardous building materials finds be uncovered.

7 STATEMENT OF LIMITATIONS

No survey can be guaranteed to locate all hazardous building materials. The demolition or refurbishment of site structures may uncover hazardous building materials which were concealed or otherwise impractical to access during this assessment.

The findings presented in this report are based on specific searches of relevant, government historical databases and anecdotal information that were made available during the course of this investigation. To the best of our knowledge, these observations represent a reasonable interpretation of the general condition of the site at the time of report completion.

This report has been prepared solely for the use of the client to whom it is addressed and no other party is entitled to rely on its findings.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Sydney Environmental Group Pty Ltd. Should information become available regarding conditions at the site including previously unknown sources of contamination, SE reserves the right to review the report in the context of the additional information.

This report must be reviewed in its entirety and in conjunction with the objectives, scope and terms applicable to SE's engagement. The report must not be used for any purpose other than the purpose specified at the time SE was engaged to prepare the report.

Logs, figures, and drawings are generated for this report based on individual SE consultant interpretations of nominated data, as well as observations made at the time site walkover/s were completed.

Data and/or information presented in this report must not be redrawn for its inclusion in other reports, plans or documents, nor should that data and/or information be separated from this report in any way.

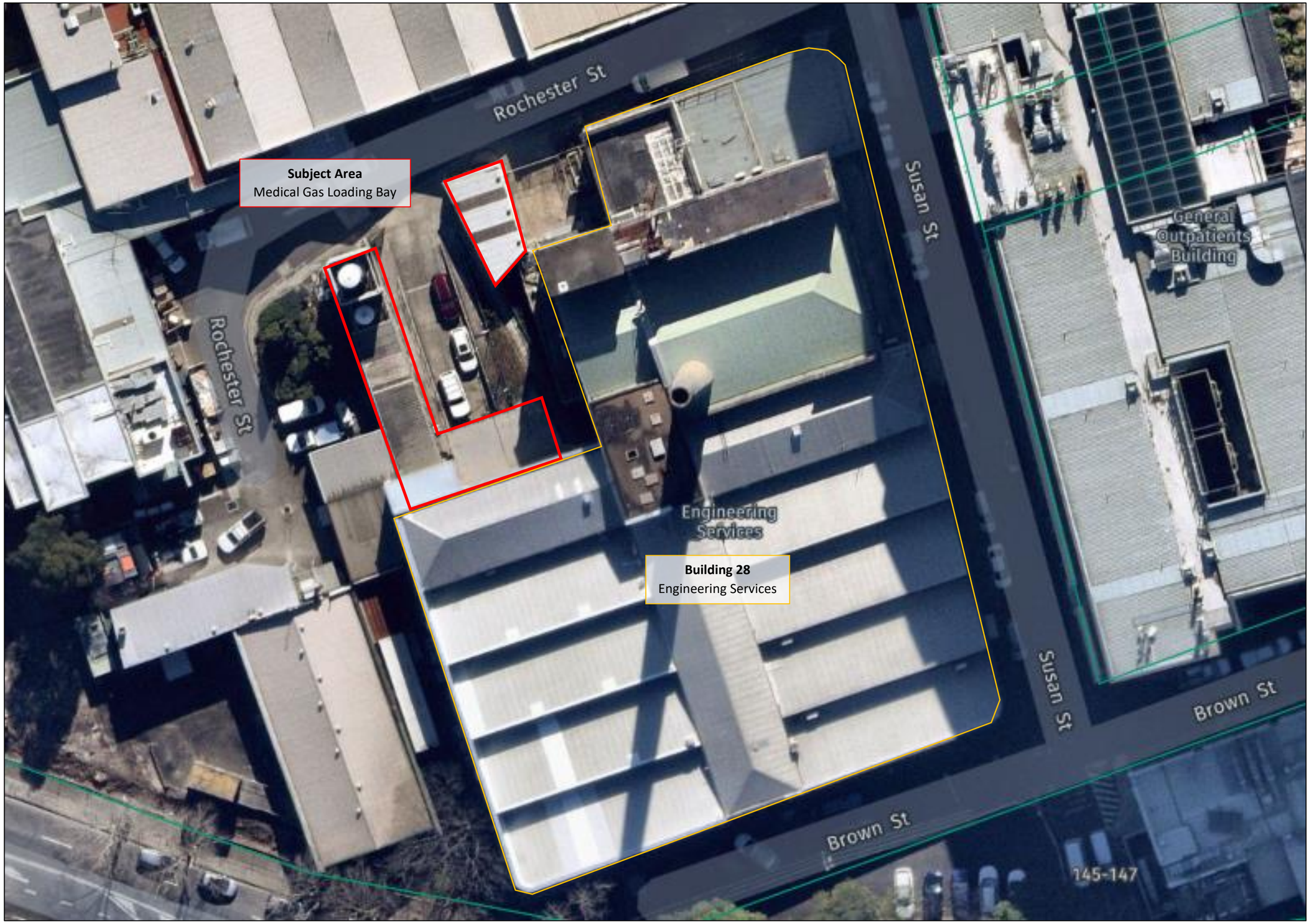
Should additional information that may impact on the findings of this report be encountered or site conditions change, SE reserves the right to review and amend this report.

8 REFERENCES

- Health Infrastructure. (2021). Design Guidance Note 15. *Asbestos and Other Hazardous Materials Management*;
- Health Infrastructure. (2021). Design Guidance Note 30. *Asbestos and Other Hazardous Materials Management*;
- NSW Government. (2011). Workplace Health and Safety Act 2011;
- NSW Government. (2017). Workplace Health and Safety Regulation;
- SafeWork NSW. (2016). Code of Practice: Demolition Work;
- Standards Australia. (2001). Australian Standard 2601: The Demolition of Structures;
- SafeWork NSW (2019). Code of Practice: How to Safely Remove Asbestos;
- SafeWork NSW (2019). Code of Practice: How to Manage and Control Asbestos the Workplace;
- Standards Australia. (2017). Australia Standard 4361.1 Guide to Lead Paint Management. Part 1: Industrial Applications;
- Standards Australia. (2017). Australian Standard 4361.2: Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings;
- Standards Australia. (2000). Australian Standard 4874: Guide to the Investigation of Potentially Contaminated Soil and Deposited Dust as a Source of Lead Available to Humans;
- ANZECC. (1997). Identification of PCB-containing Capacitors: An Information Booklet for Electricians and Electrical Contractors;
- National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure, 1999, 2013 Amendment;
- Queensland Department of Environmental and Heritage Protection. (2016). Guideline Waste Management - Managing Polychlorinated biphenyl;
- National Occupational Health and Safety Commission. (1990). National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)];
- SafeWork NSW. (2013). Guide to Handling Refractory Ceramic Fibres;
- Electrical Contractors' Association of Australia. (1993). Code of Practice for the Safe Handling of Equipment Containing Polychlorinated Biphenyls;
- NSW EPA. (1997). Polychlorinated Biphenyl (PCB) Chemical Control Order 1997; and
- NSW EPA. (2014). Waste Classification Guidelines – Part 1: Classifying Waste.

ATTACHMENT 1

FIGURES

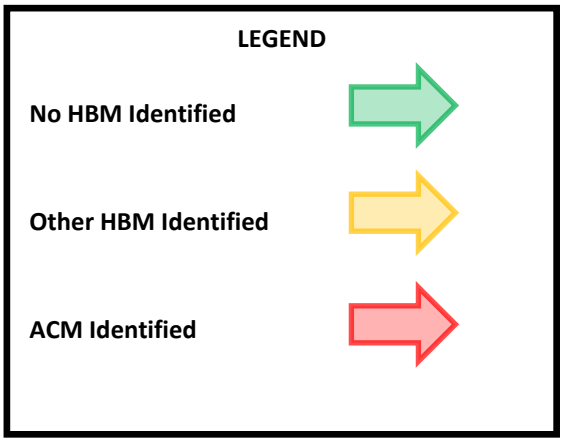


Sydney Environmental Group

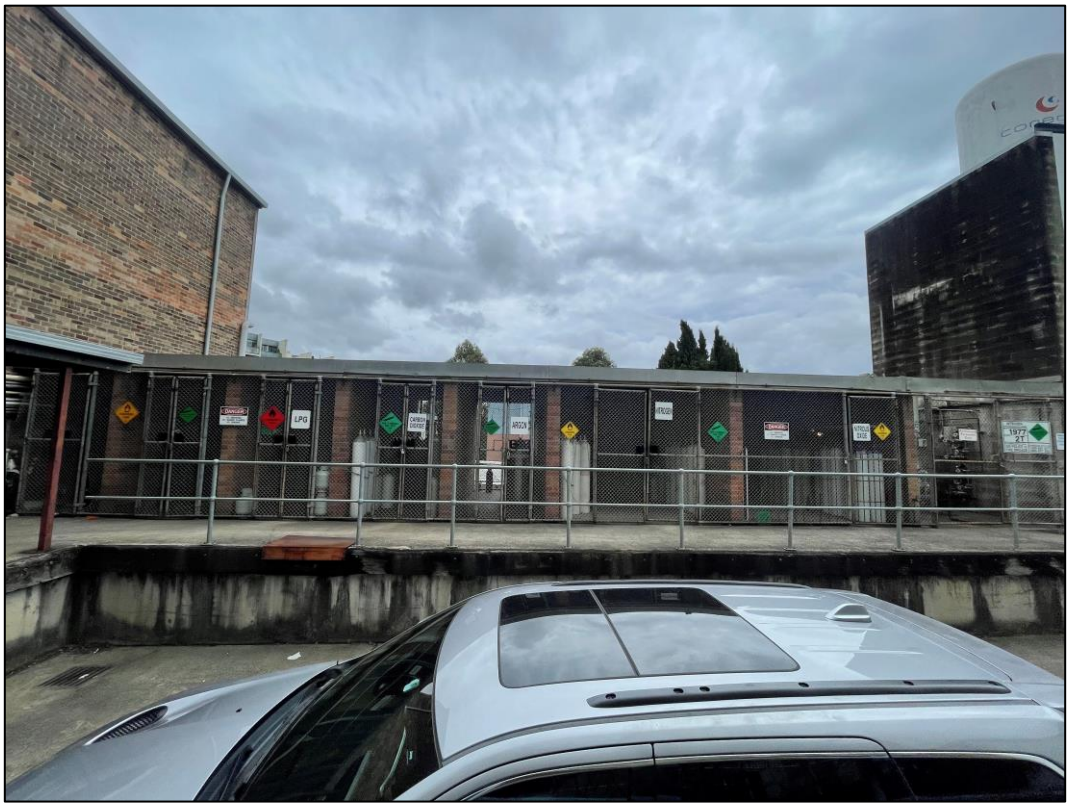
Site Locality and Subject Area				
Client Name:	Sydney Local Health District (c/- Cardno (NSW) Pty Ltd)	N	Figure Number:	1
Project Name:	Hazardous Building Materials Survey		Figure Date:	30 September 2022
Project Location:	Medical Gas Loading Bay, Portion of Building 28, RPA Hospital Camperdown NSW		Report Number:	1284-HBMS-13-041022.v1f

ATTACHMENT 2

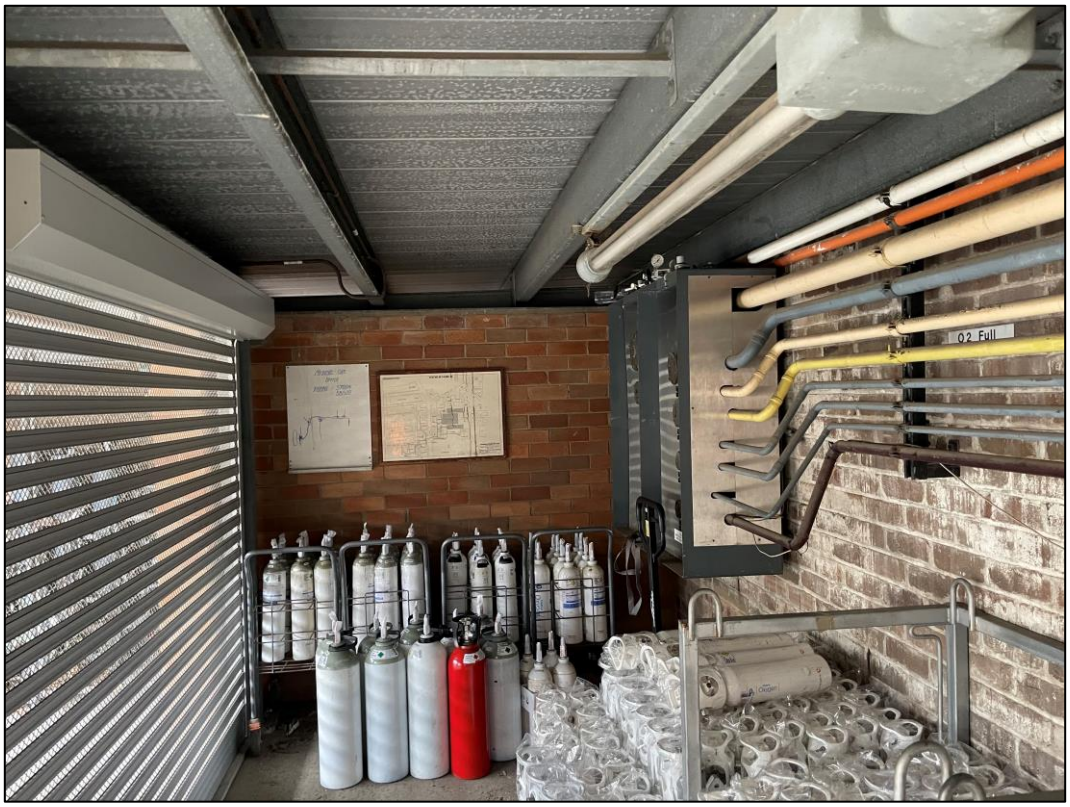
SITE PHOTOGRAPHS



Photograph 1 Medical gas loading bay, as viewed from Rochester Street.



Photograph 2 Medical gas loading bay, as viewed from the loading dock.



Photograph 3 Example of internal medical gas storage area.

Photograph 4 View of shed interior.

ATTACHMENT 3

HAZARDOUS BUILDING MATERIALS REGISTER

Hazardous Building Materials Register

Inspected By: Patrick Brown
LAA ID: LAA001490
Inspection Date: 21/09/2022

Address: Portion of Building 28, RPA Hospital, Camperdown NSW
Subject Areas: Medical Gas Loading Bay

Inaccessible Areas: All live electrical equipment
Areas above three metres
Areas behind locked doors

Date	LOCATION			MATERIAL DESCRIPTION								RISK MANAGEMENT			CORRECTIVE ACTIONS			
	Building	Room	Surface	Material Application	Quantity	Units	Sample Type	Sample ID No.	Photo No.	Analytical Result	Material Condition as Surveyed	Risk Status	Control Recommendations/ Comments	Review date	Consultant/ Hygienist Name	Control Action Taken	Date Actioned	Contractor Details
Medical Loading Bay - Exterior																		
	No hazardous building materials											-	-	-				
Medical Loading Bay - Exterior																		
	No hazardous building materials											-	-	-				
Medical Loading Bay Shed - Exterior																		
	No hazardous building materials											-	-	-				
Medical Loading Bay Shed - Exterior																		
	No hazardous building materials											-	-	-				

ATTACHMENT 4

LABORATORY DOCUMENTATION

No Laboratory Documentation Required