

Hazardous Materials Management Plan



Site Address:

Walsh Bay Properties

Client Name:

NSW Department of
Trade and Investment
C/- Colliers International

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2 EXECUTIVE SUMMARY

A hazardous materials survey inspection was undertaken at the property with the following materials identified.

Asbestos:

The following asbestos containing materials (ACM's) were identified at the time of the inspection:

- The electrical backing boards above door height on Wharf 4/5 are assumed to contain asbestos.
- The fibre cement sheet panelling at height on Pier 2/3, Wharf 4/5 and the Shore Sheds is assumed to contain asbestos.
- The sliding fire door on the Ground Floor adjacent to the Props Department at Wharf 4/5 is assumed to contain an asbestos core.
- The inaccessible electrical boxes within the Shore Sheds Pump Room are assumed to contain asbestos containing backing boards.
- The inaccessible electrical box within the Wharf 4/5 Ground Floor Sets Department is assumed to contain an asbestos containing backing board.

Polychlorinated biphenyls (PCB's):

- No PCB containing capacitors were sighted during this inspection.

Lead in paint:

- The light blue paint to the sliding external doors of the Wharf and Piers.
- The white paint to the external timber cladding of the Wharf and Piers.
- The blue paint to the external timber cladding of the Wharf and Piers is likely to contain lead at the base layers.
- The external paintwork systems to window frames should be assumed to contain lead.
- Paintwork in original/unrefurbished areas of the site should be assumed to contain lead.

In order to be classified lead based paint, the lead content must be > 1% w/w.

Synthetic Mineral Fibres (SMF's):

- Fire pillows or insulating wool stuffed in penetrations around pipework and cabling will contain SMF.
- The wall baffling within the Wharf 4/5 Mechanical Plantroom will contain SMF.
- The foil lined insulation beneath the external roof is SMF.
- The foil lined insulation around pipework is SMF.
- The foil lined insulation around ducting is SMF.
- Loose yellow insulation batts in ceiling spaces contain SMF.
- Wall voids between rooms or office spaces may contain SMF insulating batts.
- All large & instant hot water units may contain SMF insulation internally.

Any removal or maintenance works on the asbestos containing materials should be recorded in the Asbestos Maintenance Record located in Appendix C.

All accessible asbestos containing materials should be labelled in accordance with current regulations. Examples of Warning Labels can be found at Appendix D.

If there are any queries in relation to the management of asbestos containing materials at the site that are not addressed in this management plan EMS should be contacted for advice.

3 INTRODUCTION

3.1 SCOPE

Environmental Monitoring Services Pty Ltd (EMS) was requested by NSW Department of Trade and Investment C/- Colliers International to prepare a Hazardous Materials Management Plan (HMMP) for a set of Walsh Bay Properties (the Site).

A person conducting a business or undertaking (PCBU) has a legal obligation under Chapter 8 of the Work Health and Safety Regulation 2011, to ensure the workplace health and safety of its staff, contractors and visitors. A PCBU also has an obligation to ensure the workplace health and safety of others is not affected by the way they conduct their business.

The purpose of the HMMP is to address a PCBU's legal obligation under the Work Health and Safety Regulation, as it relates specifically to the presence of asbestos-containing materials (ACM) at the Site. The HMMP is a working document designed to effectively manage and minimise asbestos-related health risks to personnel working within or visiting the Site.

The HMMP is to be read in conjunction with the existing Asbestos Register Report prepared for the Site.

Personnel requiring access to the Site who are to be informed of the Hazardous Materials Management Plan are as follows:

- ❖ General Manager;
- ❖ OH&S Manager;
- ❖ Contractors;
- ❖ Emergency Personnel (Fire, Police, Ambulance) whom may require access to the property; and
- ❖ Staff.

3.2 ASBESTOS OVERVIEW

Asbestos is a term used for a number of naturally occurring minerals which have crystallised to form long thin fibres and fibre bundles. The fibres have high tensile strength and chemical, electrical and heat resistance.

There are six regulated types of asbestos, the three main types being chrysotile, amosite and crocidolite. These three main types were widely used in Australia and are also referred to as white, brown and blue asbestos respectively.

Uses of asbestos have included fibro-sheeting, corrugated roofing, asbestos cement pipes, thermal insulation and fireproofing. It has also been used as an additive in paints and sealants, in textiles such as felts and theatre curtains, in gaskets, and in friction products like brake linings and clutches. During the peak building years, i.e. 1950s, 60s and 70s, asbestos found its way into most public buildings, including hospitals, schools, libraries, office blocks and factories.

Due to the extensive use of asbestos in a wide variety of products it is present in many workplaces. Consequently it may pose an occupational health risk to persons who work in close proximity to ACM.

3.3 HEALTH EFFECTS OF ASBESTOS

The health effects from exposure to asbestos result from the inhalation of asbestos fibres.

If asbestos fibres are inhaled, they must first pass the filtration mechanisms lining the nose and the mouth down to the fine airways that lead to the small alveoli. Hence, only very small particles barely visible with a high-powered microscope, may eventually reach the alveoli. Fibres such as blue asbestos, which are relatively long and very fine, are more likely to reach the alveoli.

Asbestos fibres reaching the alveoli are handled in different ways. Some are carried out of the lung through the lymphatic system. Of those remaining some do not cause ill effects whilst some can lead to lung changes such as the following:

Pleural plaques Benign plural effusion and fibrosis.

Asbestosis This is a form of fibrosis (scarring) of the lungs, which results in breathlessness.

Lung cancer A cancer of the larger and medium sized airways, similar to that caused by smoking. The combination of asbestos exposure and smoking has a synergistic effect that greatly increases the risk of lung cancer.

Mesothelioma Rare cancer of the pleura and peritoneum. Crocidolite (blue asbestos) is very potent in inducing Mesothelioma and Amosite (brown asbestos) is to a lesser extent.

Although asbestos is a hazardous material, it can only pose a risk to health if the asbestos fibres become airborne and then inhaled. ACMs only release fibres into the air if they are in poor condition or if they are disturbed. Therefore, if ACMs are maintained in good condition and not disturbed they cannot release fibres and put the health of your workers or others at risk. ACMs are disturbed:

- During any direct action on them, e.g. drilling, boring, cutting, breaking, smashing, etc;
- During their removal;
- During the demolition of buildings containing them;
- Through minimal but repeated damage, e.g. an unprotected asbestos insulating board panel on the back of a door that is continually being accidentally knocked or scraped;
- When damaged asbestos (e.g. damaged pipe insulation or sprayed asbestos on beams/columns) is subject to mechanical vibration and/or strong air currents; or
- During any other action that causes the ACM to be disturbed.

3.4 MEANING OF KEY TERMS

Airborne asbestos means any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.

Asbestos containing material (ACM) means any material or thing that, as part of its design, contains asbestos.

Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or assumed to be) contaminated with asbestos.

Asbestos-related work means work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulations applies) that is permitted under the exceptions set out in regulation 419(3), (4) and (5).

Asbestos removalist means a person conducting a business or undertaking who carries out asbestos removal work.

Asbestos removal work means:

- Work involving the removal of asbestos or ACM.
- Class A asbestos removal work or Class B asbestos removal work as outlined in Part 8.10 of the WHS Regulations.

Competent person means a person who has acquired, through training, qualification or experience, the knowledge and skills to carry out the task.

Exposure standard for asbestos is a respirable fibre level of 0.1 fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours in accordance with:

- the Membrane Filter Method, or
- a method determined by the relevant regulator.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

In-situ asbestos means asbestos or ACM fixed or installed in a structure, equipment or plant but does not include naturally occurring asbestos.

NATA-accredited laboratory means a testing laboratory accredited by the National Association of Testing Authorities (NATA), Australia, or recognised by NATA either solely or with someone else.

Non-friable (formerly bonded) asbestos means material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.

PCBU means a person conducting a business or undertaking.

Respirable asbestos means an asbestos fibre that:

- is less than 3 microns (μm) wide;
- is more than 5 microns (μm) long; and
- has a length to width ratio of more than 3:1.

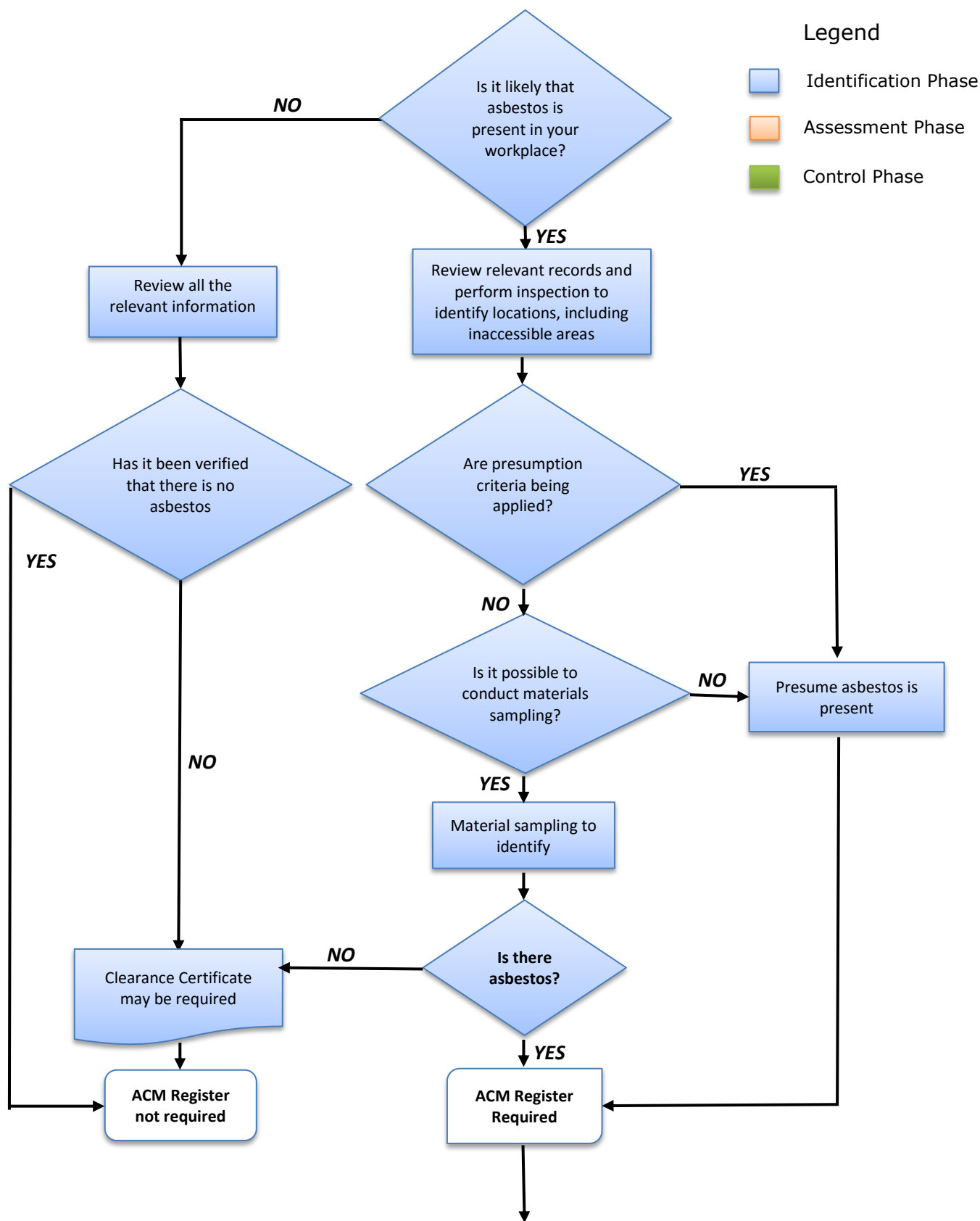
Worker means anyone who carries out work for a PCBU, such as employees, contractors and sub-contractors, an employee of a labour hire company, an apprentice or trainee, a student gaining work experience, an outworker or a volunteer.

3.5 LEGISLATION AND CODES OF PRACTICE

This HMMP has been prepared in accordance with regulations and requirements detailed in:

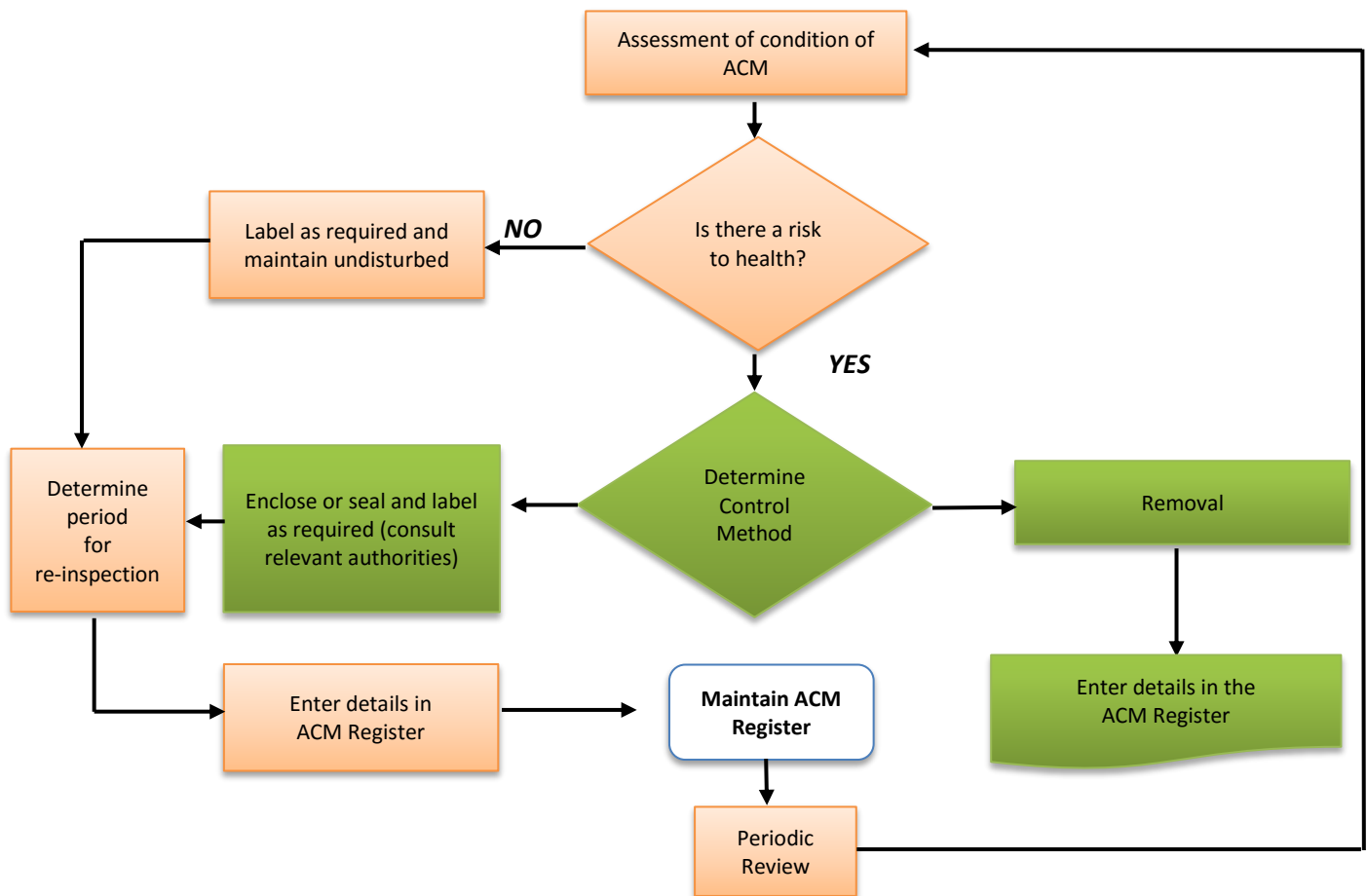
- ❖ Work Health and Safety Act 2011.
- ❖ Work Health and Safety Regulations 2011.
- ❖ Safe Work Australia's Code of Practice "How to Manage and Control Asbestos in the Workplace" December 2011.
- ❖ Safe Work Australia's Code of Practice "How to Safely Remove Asbestos" December 2011.
- ❖ National Occupational Health and Safety Commission's "Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres" 2nd Edition [NOHSC:3003 (2005)].
- ❖ WorkCover Authority of NSW.

3.6 A COMPREHENSIVE GUIDE TO MANAGEMENT OF ASBESTOS IN A PREMISE



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Safe Work Australia Code of Practice: How to Manage and Control Asbestos in the Workplace (August 2011).

4 RESPONSIBILITIES

The WHS Act requires all persons who conduct a business or undertaking (PCBU) to ensure, so far as is reasonably practicable, that workers and other persons are not put at risk from work carried out as part of the business or undertaking. The WHS Regulations include specific obligations to manage and control asbestos and ACM at the workplace. These are summarised below.

4.1 RESPONSIBILITIES OF A PCBU

Control risk of exposure

A PCBU:

- Must ensure, that exposure of a person at the workplace to airborne asbestos is eliminated, so far as is reasonably practicable, and
- if it is not reasonably practicable to eliminate exposure to airborne asbestos then that exposure must be minimised.
- Must ensure that the exposure standard for airborne asbestos is not exceeded at the workplace.

Duty to train workers about asbestos

A PCBU must ensure that workers engaged by them, whom the person reasonably believes may be involved in asbestos removal work or in the carrying out of asbestos-related work, are trained in the identification and safe handling of, and suitable control measures for, asbestos and ACM.

The training and instruction provided to a worker must be suitable and adequate and provided in a way that is readily understandable by any person to whom it is provided.

Controlling the use of equipment

A PCBU must not use, or direct or allow a worker to use, either of the following on asbestos or ACM:

- high-pressure water spray, and/or
- compressed air.

NOTE: High pressure water spray is permitted for fire fighting or fire protection purposes.

A PCBU must not use, or direct or allow a worker to use, any of the following equipment on asbestos or ACM unless the use of the equipment is controlled:

- power tools,
- brooms (excepting vinyl floor tiles), and
- any other implements that cause the release of airborne asbestos into the atmosphere.

The equipment is controlled if it is enclosed during its use, is designed to capture or suppress airborne asbestos and is used in accordance, or is used in a way that is designed to capture or suppress airborne asbestos safely.

Asbestos-related work

A PCBU must:

- If there is uncertainty (based on reasonable grounds) as to whether work is asbestos-related work, arrange for an analysis of a sample(s) to be undertaken to determine if asbestos or ACM is present.
- Give information to a person who is likely to be engaged to carry out asbestos-related work, prior to the works commencing. This information includes health risks and effects and health monitoring.
- Ensure the asbestos-related work area is separated from other work areas at the workplace, signs are used to indicate where the asbestos-related work is being carried out and barricades are used to delineate the asbestos-related work area.
- Ensure a competent person carries out air monitoring of the work area if there is uncertainty as to whether the exposure standard is likely to be exceeded.
- Ensure that decontamination facilities are available when asbestos-related work is being carried out.

Asbestos to be identified or assumed at a workplace

A PCBU:

- Must ensure, so far as is reasonably practicable, that all asbestos or ACM at the workplace is identified by a competent person.
- If material at the workplace cannot be identified but a competent person reasonably believes that the material is asbestos or ACM – assume that the material is asbestos.
- If part of the workplace is inaccessible to workers and likely to contain asbestos or ACM – assume that asbestos is present in the part of the workplace.
- Identify any previously unknown asbestos or ACM by arranging a sample of the material to be analysed.

Asbestos register

A PCBU:

- Must ensure that an asbestos register is prepared and kept at the workplace.
- Must ensure that the asbestos register is maintained to ensure the information in the register is up to date.

The asbestos register must record any asbestos or ACM identified at the workplace, or likely to be present at the workplace from time to time, including:

- The date on which the asbestos or ACM was identified.
- The location, type and condition of the asbestos or ACM.
- State that no asbestos or ACM is identified at the workplace if the person knows that no asbestos or ACM is identified, or is likely to be present from time to time, at the workplace.

The register must also be readily available to workers, their health and safety representatives and other persons, as required.

If the management or control of the workplace is relinquished, a copy of the register must be given to the person assuming management or control.

Please refer to Appendix A for an excerpt from the Asbestos Register.

Access to asbestos register

A PCBU must ensure that the asbestos register is readily accessible to:

- A worker who has carried out, carries out or intends to carry out, work at the workplace
- A health and safety representative who represents a worker
- A person conducting a business or undertaking who has carried out, carries out or intends to carry out, work at the workplace
- A person conducting a business or undertaking who has required, requires, or intends to require work to be carried out at the workplace.

If a person conducting a business or undertaking carries out, or intends to carry out, work at a workplace that involves a risk of exposure to airborne asbestos, the person with management or control of the workplace must ensure that the person is given a copy of the asbestos register.

Review of asbestos register

A PCBU:

- Must ensure that the register is reviewed and as necessary revised if the Hazardous Materials Management plan is reviewed, further asbestos or ACM is identified at the workplace, or asbestos is removed from, or disturbed, sealed or enclosed at, the workplace.

For further information on reviewing an asbestos register refer to Section 10 of this HMMP.

Presence and location of asbestos to be indicated

A PCBU:

- Must ensure that the presence and location of asbestos either confirmed by analysis or assumed is clearly indicated, and if it is reasonably practicable to do so, indicate the presence and location of the asbestos or ACM by a label.
- Examples of Warning Labels can be found at Appendix D.

Hazardous Materials Management Plan (HMMP)

A PCBU must ensure that a written HMMP for the workplace is prepared and ensure that a copy is readily accessible to all persons who are entitled to access the asbestos register.

The Hazardous Materials Management Plan must be maintained to ensure the information in the plan is up to date.

The Hazardous Materials Management plan must include information about the following:

- the identification of asbestos or ACM;
- decisions and reasons for decisions about the management of asbestos at the workplace, e.g. safe work procedures and control measures;
- procedures for detailing incidents or emergencies involving asbestos or ACM at the workplace; and
- workers carrying out work involving asbestos e.g. consultation, responsibilities, information and training.

Review of HMMP

A PCBU must ensure that the Plan is reviewed and, if necessary, revised.

For further information on reviewing an Hazardous Materials Management plan refer to Section 10 of this HMMP.

5 MANAGING RISKS ASSOCIATED WITH ASBESTOS AND ACM

Managing the risks associated with asbestos involves:

- Identifying asbestos and ACM at the workplace and recording this in the asbestos register.
- Assessing the risk of exposure to airborne asbestos.
- Eliminating or minimising the risks by implementing control measures.
- Reviewing control measures to ensure they are effective.

When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

- Eliminating the risk (for example, removing the asbestos).
- Substituting the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools).
- Using administrative controls (for example, safe work practices).
- Using PPE.

A combination of these controls may be required in order to adequately manage and control asbestos or ACM.

Consultation with workers and their health and safety representatives is a critical part of managing work health and safety risks.

Consulting with and involving workers in the identification and safe handling of asbestos can assist in ensuring that safety instructions and safe work practices are complied with.

Health and safety representatives must have access to relevant information on matters that can affect the health and safety of workers, for example asbestos exposure data and the asbestos register.

Section 46 of the WHS Act requires that persons conducting a business or undertaking consult, cooperate and coordinate activities with all other persons who have a work health or safety duty in relation to the same matter, so far as is reasonably practicable.

6 RISK ASSESSMENT AND PRIORITY RATINGS

If asbestos or ACM is in good condition and left undisturbed, it is unlikely that airborne asbestos will be released into the air and the risk to health is extremely low. It is usually safer to leave it and review its condition over time. However, if the asbestos or ACM has deteriorated, has been disturbed, or if asbestos-contaminated dust is present, the likelihood that airborne asbestos will be released into the air is increased.

The type of material that binds asbestos fibres will influence the potential for airborne asbestos to be released into the air from different asbestos or ACM. For example, a loosely bound sprayed (or limpet) coating is more likely to release fibres when disturbed than asbestos cement in which fibres are firmly bound.

When deciding if there is a risk to health from asbestos, consider whether the asbestos or ACM is:

- In poor condition.
- Likely to be further damaged or to deteriorate.
- Likely to be disturbed due to work practices carried out in the workplace (for example, routine and maintenance activities and their frequency).
- In an area where workers are exposed to the material.

A visual inspection of the material, its location and an understanding of the work practices at the workplace will assist this decision.

Asbestos-related work activities (including maintenance) plus unusual and infrequent activities (such as emergency activities) need to be considered. Also take into account the proximity of the asbestos or ACM to where employees work, as this can affect the potential for exposure if asbestos fibres become airborne.

The risk assessment must be carried out by an independent competent person. Consultation with relevant persons in control of the workplace including occupation health and safety representatives and persons responsible for maintenance will assist in the risk assessment.

EMS conducts risk assessments on ACM based upon an evaluation of factors including:

- friability of material;
- condition;
- location;
- potential for fibre release; and
- likelihood that the material may be disturbed.

Following a review of the above factors a risk assessment rating is allocated to ACM at a site. These ratings are:

Priority 1 High risk material requiring urgent attention

ACM or ACD that poses an immediate or elevated health risk. Control measures to stabilise or remove these materials should be implemented as soon as possible. The materials must be isolated pending control measures.

Priority 2 Medium risk material requiring near term attention

ACM or ACD that pose a potential health risk by release of asbestos fibres in their current condition or if any further damage occurs. Control measures to stabilise or remove these materials should be implemented as soon as practicable.

Priority 3 Low risk material under present conditions

Stable ACM which is unlikely to present a risk to health unless damaged, tooled, cut, sanded, abraded or machined. These materials must be maintained in good order and regularly inspected for any deterioration or damage.

Priority 4 Inaccessible areas / materials

Inaccessible areas (e.g. wall cavities) or materials (e.g. gaskets on plant equipment or electrical boards) should be assumed to contain asbestos until sample analysis confirms otherwise. If the areas or materials are likely to be disturbed by refurbishment or demolition works they should be inspected by a competent person prior to works.

In the event that additional asbestos is identified, a risk assessment of the material should be conducted by a competent person and the material included in the asbestos register and HMMP.

7 CONTROL OF ASBESTOS RISKS AND CONTROL MEASURES

A PCBU has a responsibility to eliminate the risk of exposure to asbestos, or if this is not reasonably practicable, minimising them so far as is reasonably practicable. A risk management process should be followed that involves identifying whether asbestos or ACM is at a workplace and including them in the asbestos register, assessing the risk of exposure and then implementing appropriate control measures.

When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

- Eliminating the risk (for example, removing the asbestos).
- Substituting for the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools).
- Using administrative controls (for example, safe work practices).
- Using PPE.

A combination of these controls may be required in order to adequately manage and control asbestos or ACM.

IMPORTANT NOTE: If ACM identified at a workplace has been classified as low risk material then no further action may be necessary other than labelling the material, ensuring the material remains in good condition, undertaking periodic re-inspection and using administrative controls including safe work practices.

The following control options apply to all ACM at a workplace other than materials classified as low risk.

7.1 REMOVAL OF ASBESTOS

The ultimate goal is to have a workplace free from asbestos. Removal may be the most appropriate way to achieve this. For example:

Friable asbestos – If asbestos is friable and it has been determined that it should be removed, it must be removed by a Class A licensed removalist as soon as reasonably practicable. Instances where removal should be of the highest priority would include friable asbestos that is in poor condition and is located in an area where it poses a significant risk of exposure.

Non-friable asbestos – If asbestos is non-friable, is more than 10 m² and has been determined that it should be removed, it must be removed by a licensed asbestos removalist as soon as reasonably practicable. Where it is not reasonably practicable to remove it, control measures must be put in place to eliminate any exposure, so far as is reasonably practicable, or to minimise exposure so far as is reasonably practicable, but always ensuring the exposure standard is not exceeded.

Specific instances where removal may be the best control measure include:

- asbestos lagging on pipes;
- asbestos in plant;
- asbestos-contaminated dust (ACD);
- loose fibre insulation; and/or
- damaged asbestos fibre cement sheeting.

The Code of Practice “How to Safely Remove Asbestos” provides detailed guidance on appropriate work methods and additional controls for the removal of asbestos.

If it is not reasonably practicable to remove asbestos, then other control measures must be implemented to ensure people are not exposed to airborne asbestos, including either enclosing or sealing the asbestos.

7.2 ENCLOSING ASBESTOS

Where it is not reasonably practicable to remove asbestos, the preferred alternative control measure is enclosure.

This may be determined during the risk assessment by reviewing a range of issues including productivity, the condition of the asbestos, the risk it poses to health and cost. This is an interim control measure and should be supported through regular inspections by a competent person to identify if the asbestos requires removal due to damage or deterioration.

Enclosure is the creation of a structure built around the asbestos so that it is completely covered to prevent exposure of the asbestos to air and other substances. Enclosure creates a separate physical barrier that prevents access to the asbestos and therefore minimises the potential for exposure to airborne fibres. Enclosure should only be used on non-friable asbestos where removal is not reasonably practical and where the asbestos is at risk of damage from work activities. Consideration must be given when designing the enclosure for the need to provide access to the asbestos for regular inspection of its condition.

7.3 ENCAPSULATION AND SEALING ASBESTOS

If the asbestos cannot be removed or enclosed, encapsulation or sealing is the next appropriate control measure.

7.3.1 Encapsulation

Asbestos that is encapsulated in a resilient matrix, for example in reinforced plastics, vinyls, resins, mastics, bitumen, flexible plasters and cements have little opportunity to release airborne asbestos unless the matrix is damaged. This type of encapsulation will seal any loose fibres into place and should be used only when the original asbestos bond is still intact. Although encapsulation has limited application and can create a health risk for workers undertaking the activity, it is used when it would create a greater risk to remove the asbestos.

Encapsulation helps protect the asbestos from mechanical damage, increases the length of serviceability of the product and may also be used to prevent the release of airborne asbestos during the removal process.

If encapsulation is recommended, the person carrying out the work should:

- be trained and experienced in working with asbestos;
- isolate the area;
- use suitable RPE that complies with AS/NZS 1716:2003 Respiratory Protective Devices;
- wear suitable protective clothing such as disposable overalls;
- follow a safe system of work that reduces the risk of creating airborne asbestos; and
- follow a decontamination procedure upon completion of the task.

7.3.2 Sealing

Sealing is the process of covering the surface of the material with a protective coating over the asbestos to prevent exposure to airborne asbestos. Sealing asbestos is the least effective method for controlling the release of airborne asbestos. It should only be considered as an interim control while a more effective control such as removing or enclosing can be implemented. It is commonly used for pipe, furnace and boiler insulation. The process either coats the material, reducing fibre release, or binds the fibres together. Asbestos should be sealed, coated or painted to protect it. Sealing is inappropriate where the sealed material is likely to suffer mechanical damage (for example, drilling or sanding).

It is important to select coating that is appropriate to the material to be sealed and has the required fire resistance, thermal insulation and ultraviolet (UV) properties necessary for it to be an effective control. The coating will deteriorate if it is exposed to chemicals, extreme heat or cold, wet or dry conditions or physical impacts. For example, epoxy-based paints offer better durability and strength than other paints.

Under no circumstances should asbestos be water blasted or dry sanded in preparation for painting, coating or sealing, as there is no system of use that can effectively capture or suppress asbestos fibres in such circumstances. To treat asbestos, a method should be used that does not disturb the asbestos.

An airless sprayer at low pressure is preferred to rollers or brushes on exposed (or unsealed) asbestos, as rollers and brushes may cause abrasion/damage and result in fibres being released from the surface of the material. When using a spray brush, never use a high-pressure spray to apply the paint. You should apply it with a dry airless spray using a low pressure to avoid generating high levels of asbestos dust. Several coatings may be needed for full protection.

The surface on which the sealant is to be applied should be cleaned with an asbestos vacuum cleaner fitted with a high efficiency particulate air (HEPA) filter. This will help capture any loose dust or debris from the surface and ensure good adhesion of the sealant. The surface during application should not be disturbed as this releases asbestos dust.

The use of sealants of a different colour to the asbestos being sprayed is helpful in identifying its condition over time and when conducting reviews of the asbestos register. A date-stamped photograph of the sealed surface is also a good way of assisting in the recording of condition.

8 DEMOLITION AND REFURBISHMENT

This section applies to the demolition or refurbishment of a structure or plant constructed or installed before 31 December 2003.

Regulations 447-457 of the Work Health and Safety Regulation 2011 state that prior to any demolition or refurbishment work being carried out, a person with management and control of a workplace must:

- Review the asbestos register.
- Provide a copy of the asbestos register to the person carrying out the demolition or refurbishment work.
- Ensure asbestos that is likely to be disturbed is identified and, so far as is reasonably practicable, removed.
- If an asbestos register is not available, ensure the structure or plant to be demolished or refurbished has been inspected by a competent person to determine if any asbestos or ACM is fixed to or installed (or assume its presence).

The PCBU who will carry out demolition or refurbishment at a workplace must obtain a copy of the asbestos register before they commence the work.

Demolition or refurbishment work does not include minor routine maintenance work, or other minor work.

Minor maintenance work includes routine work that is small scale, often short in duration and may be unscheduled. This work may require the partial dismantling of a structure or plant and may include the removal of asbestos or ACM such as gaskets or brake components, for example a piece of plant to remove an asbestos-containing gasket, a passenger lift or press machine to remove an asbestos-containing brake component, or a piece of plant for the purpose of cleaning or repair.

Minor work includes small tasks that are of short duration, such as cutting a small hole or hand-drilling up to a few holes in an AC sheet. It is not routine or regular such as planned maintenance. It is incidental work that can be done quickly and safely within minimal control measures required to ensure safety. Examples include cutting a small hole into an asbestos-containing eave to install a cable, removal of an asbestos-containing vinyl tile to install a plumbing fixture, or hand-drilling a few holes into an AC sheet to attach a fitting.

Reviewing the asbestos register prior to demolition or refurbishment work

When reviewing the asbestos register, the person with management or control of the workplace or plant should consider the following questions:

- Where is the asbestos located in relation to the proposed demolition or refurbishment?
- Are there any inaccessible areas that are likely to contain asbestos and that will be disturbed as a result of the demolition or refurbishment?
- What is the type and condition of the asbestos?
- What is the quantity of asbestos?
- What is the method of demolition or refurbishment and how will it affect the ACM?
- If the asbestos will be disturbed during the demolition or refurbishment, can it be removed safely before work commences and how can this be done?

IMPORTANT NOTE: The asbestos materials inspection was carried out in a thorough and professional manner. The inspection however, was non-destructive and due to limitations in access EMS could not guarantee that all asbestos materials were identified.

If any demolition or refurbishment work is to be carried out a more destructive inspection of the subject area may be required.

Any removal of asbestos materials must be carried out in accordance with Safe Work Australia's Code of Practice "How to Safely Remove Asbestos" and WorkCover Authority of NSW guidelines.

9 PCBU PERSONNEL CARRYING OUT ASBESTOS WORK

The following section applies to PCBU workers who may be requested to carry out any asbestos related work at the site.

Regulation 39 of the WHS Act states that a person conducting a business or undertaking must ensure that information, training and instruction provided to a worker is suitable and adequate, having regard to:

- the nature of the work carried out by the worker
- the nature of the risks associated with the work at the time the information, training or instruction is provided, and
- the control measures implemented.

The person must, so far as is reasonably practicable, ensure the information, training and instruction is provided in a way that is readily understandable by any person to whom it is provided.

Regulation 445 of the WHS Act states that a person conducting a business or undertaking must ensure workers who they reasonably believe may be involved in asbestos removal work in the workplace or the carrying out of asbestos-related work are trained in the identification, safe handling and suitable control measures for asbestos and ACM.

This training may include the following topics:

- Purpose of the training;
- Health risks of asbestos;
- Types, uses and likely presence of asbestos in the workplace;
- Persons conducting a business or undertaking and the worker's roles and responsibilities under the Hazardous Materials Management plan;

- Where the asbestos register is located, how it can be accessed and how to understand the information contained in it;
- Processes and safe work procedures to be followed to prevent exposure, including exposure from any accidental release of airborne asbestos;
- Where applicable, the correct use of PPE including respiratory protective equipment (RPE);
- The implementation of control measures and safe work methods to eliminate or minimise the risks associated with asbestos to limit the exposure to workers and other persons;
- Exposure standard and control levels for asbestos; and/or
- Purpose of any exposure monitoring or health monitoring that may occur.

This training is more general than the training that a worker undertaking asbestos removal work would receive. Workers who are undertaking licensed asbestos removal work are required to complete specific units of competency.

Records of all training must be kept while the worker is carrying out the work and for five years after the day the worker stops carrying out the work. These records must also be available for inspection by the regulator.

The following information has been extracted from The Code of Practice 'How to Safely Remove Asbestos' (2011).

Removal of asbestos by a person who does not hold a Class A or Class B asbestos removal licence is permitted if the asbestos being removed is:

- 10m² or less of non-friable asbestos; and/or
- ACD that is not more than a minor contamination and is associated with the removal of 10m² or less of non-friable asbestos.

Friable asbestos materials must not be removed by a person who does not have a Class A asbestos licence.

A worker carrying out asbestos removal work must be trained in the identification and safe handling of asbestos prior to carrying out asbestos removal work without a licence. An asbestos awareness course or the non-friable removal unit of competency would be considered appropriate training.

This allows a person to remove small amounts of non-friable asbestos and replace it with non-asbestos alternatives if they come across it during service and maintenance work. However, this person must still use safe working methods to ensure the work is not creating a risk to the health and safety of persons at the workplace.

The WHS Act requires a person who is carrying out asbestos removal work without a licence to comply with the duties outlined in Chapter 4 of the Code of Practice 'How to Safely Remove Asbestos' (2011) and also with some of the duties in Chapter 3 of this Code. These duties include:

- Ensure signs and barricades are erected to indicate and delineate the asbestos work area.
- Use the wet method to remove asbestos where reasonably practicable.
- Ensure the correct tools, equipment and PPE are used.
- Ensure decontamination facilities are available.
- Contain and label asbestos waste and dispose of it as soon as reasonable practicable.

- Ensure that PPE and clothing used in asbestos removal work and contaminated with asbestos is handled in accordance with WHS Regulations.

Although it is not mandatory for the person to prepare an asbestos removal control plan for this type of asbestos removal work, it may be beneficial to do so to ensure the work is being carried out safely.

It is also not mandatory to conduct air monitoring during these works, however an independent licensed asbestos assessor or competent person may carry it out in these situations, if requested, to ascertain that the works are not generating excessive airborne fibre levels.

10 TIMETABLE FOR REVIEWING AND REVISING THE HMMP AND ASBESTOS REGISTER

10.1 REVIEWING THE HAZARDOUS MATERIALS MANAGEMENT PLAN

Regulation 430 of the Work Health and Safety Regulation 2011 states that the person with management or control of the workplace must ensure the Hazardous Materials Management plan is reviewed and, if necessary, revised at least once every five years or when:

- there is a review of the asbestos register or a control measure;
- asbestos is removed from or disturbed, sealed or enclosed at the workplace;
- the plan is no longer adequate for managing asbestos or ACM at the workplace; and/or
- a health and safety representative requests a review if they reasonably believe that any of the matters listed in the above points affects or may affect the health and safety of a member of their work group and the Hazardous Materials Management Plan was not adequately reviewed.

The review of the Hazardous Materials Management Plan would be best carried out by the person responsible for the review of the Site Asbestos Register in consultation with a suitable representative from PCBU.

10.2 REVIEWING AND REVISING THE ASBESTOS REGISTER

Regulation 426 of the Work Health and Safety Regulation 2011 states that a person with management or control of a workplace must ensure an asbestos register is reviewed and where necessary revised by a competent person if:

- the Hazardous Materials Management Plan is reviewed;
- further asbestos or ACM is identified at the workplace; or
- asbestos is removed from or disturbed, sealed or enclosed at the workplace.

The register should be reviewed at least once every five years to ensure it is kept up-to-date.

When reviewing the asbestos register, the person should carry out a visual inspection of the asbestos and ACM listed to determine its condition and revise the asbestos register as appropriate.

All records relating to asbestos materials at the Site including removal works and clearance certificates should be included in the register.

The review and revision of the asbestos register would be best carried out by the Company that prepared the register.

NOTE: EMS considers that a visual inspection and subsequent risk assessment should be carried out at a minimum every two years and ideally, every year.

11 AIR MONITORING

Air monitoring involves sampling airborne asbestos fibres to assist in assessing exposure to asbestos and the effectiveness of implemented control measures. It must be conducted in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC: 3003 (2005)] by a NATA accredited laboratory.

There are three main forms of air monitoring:

- **Control monitoring** using static or positional samples to measure the level of airborne asbestos fibres in an area. Control monitoring is designed to assist in assessing the effectiveness of implemented control measures to ensure that an enclosure or other controls used during asbestos removal are effective at preventing fibres from being found outside the work area.
- **Clearance monitoring** to ensure that the work area is free of asbestos fibres prior to being certified for reoccupation.
- **Personnel exposure monitoring** which measures the levels of respirable fibres in the breathing zone of the worker while work is being undertaken. Exposure monitoring is designed to reliably estimate exposure so that it can be compared with the occupational exposure standard or provide an estimate of a person's exposure.

11.1 WHEN IS AIR MONITORING REQUIRED?

Air monitoring requirements will vary depending on the type of asbestos being removed, the location and position of the asbestos, if an enclosure is used and whether the asbestos removal work is within a building or outside.

- **Friable asbestos removal** – Air monitoring is mandatory for all friable asbestos removal. This includes prior to dismantling an enclosure and for the purposes of the clearance inspection.
- **More than 10m² of non-friable asbestos removal** – Air monitoring is not required but may be considered to be carried out by an independent licensed asbestos assessor or competent person to ensure compliance with the duty to eliminate or minimise exposure to airborne asbestos and to ensure the exposure standard is not exceeded.
- **Public Location** – Air monitoring should be considered where the asbestos removal work is being undertaken in or next to a public location.
- **Exposure air monitoring** – Air monitoring should be carried out at other times to determine a worker's exposure to airborne asbestos if, based on reasonable grounds, there is uncertainty as to whether the exposure standard may be exceeded and a risk assessment by a competent person indicates it is necessary. Since most uses of asbestos are prohibited, exposure monitoring should not be required frequently.

Air monitoring may be required when:

- it is not clear whether new or existing control measures are effective;

- there is evidence (for example, dust deposits are outside the enclosure) the control measures have deteriorated as a result of poor maintenance;
- modifications or changes in safe work methods have occurred that may adversely affect worker exposure; and/or
- there has been an uncontrolled disturbance of asbestos at the workplace.

11.2 WHEN MUST THE AIR MONITORING BE CARRIED OUT?

The air monitoring must be conducted before and during Class A (friable) asbestos removal work. Air monitoring must be carried out as part of the clearance inspection, for instance at the conclusion of the asbestos removal work.

11.3 WHO MUST CONDUCT AIR MONITORING?

A person who commissions asbestos removal work that requires a Class A licence must ensure that an independent licensed asbestos assessor undertakes air monitoring of the asbestos removal area at the workplace.

In relation to asbestos removal work requiring a licence:

- **Friable asbestos removal** – An independent licensed asbestos assessor must be engaged to carry out air monitoring when it is required.
- **Non-friable asbestos removal (more than 10m²)** – An independent licensed asbestos assessor or competent person must be engaged to carry out air monitoring when it is required.

Where air monitoring is otherwise required, for instance to determine whether the exposure standard has been exceeded following an uncontrolled disturbance or release of asbestos at the workplace, an independent licensed asbestos assessor or competent person may carry it out. However, if the release involves friable asbestos, only an independent licensed asbestos assessor can carry out the air monitoring.

11.4 RESULTS OF THE AIR MONITORING

Once the results of the air monitoring are received, the licensed asbestos removalist must take action depending on the respirable fibre level. Where the results show that respirable asbestos fibre levels exceed the action levels outlined below, action must be taken immediately.

Action level	Control	Action
Less than 0.01 fibres/ml	No new control measures are necessary	Continue with control measures
At 0.01 fibres/ml or more than 0.01 fibres/ml but less than or equal to 0.02 fibres/ml	1. Review	Review control measures
	2. Investigate	Investigate the cause
	3. Implement	Implement controls to eliminate or minimise exposure and prevent further release
	1. Stop removal work	Stop removal work

Action level	Control	Action
More than 0.02 fibres/ml	2. Notify regulator	Notify the relevant regulator (WorkCover NSW) by phone followed by fax or written statement that work has ceased and the results of the air monitoring
	3. Investigate the cause	Conduct a thorough visual inspection of the enclosure (if used) and associated equipment in consultation with all workers involved with the removal work
	4. Implement controls to eliminate or minimise exposure and prevent further release	Extend the isolated/barricaded area around the removal area/enclosure as far as reasonably practicable (until fibre levels are at or below 0.01 fibres/ml, wet wipe and vacuum the surrounding area, seal any identified leaks (e.g. with expandable foam or tape) and smoke test the enclosure until it is satisfactorily sealed.
	5. Do not recommence removal work until further air monitoring is conducted	Do not recommence until fibre levels are at or below 0.01 fibres/ml

11.5 COMMUNICATING THE RESULTS OF THE AIR MONITORING

The person who commissions the licensed asbestos removal work must ensure the results of the air monitoring are given to the following persons:

- Workers at the workplace.
- Health and safety representatives for the workplace.
- Persons conducting businesses or undertakings at the workplace.
- Other persons at the workplace.

12 CLEARANCE CERTIFICATION

A person commissioning licensed asbestos removal work must ensure that, once the licensed asbestos removal work has been completed, a clearance inspection is carried out and a clearance certificate is issued before the workplace can be re-occupied.

The clearance inspection must be carried out by:

- ❖ An independent licensed asbestos assessor, for work that must be carried out by a Class A licensed asbestos removalist (for example, if the removal work involved friable asbestos).
- ❖ An independent competent person, for asbestos work that is not required to be carried out by a Class A licensed asbestos removalist (for example, if removal work involved more than 10m² of non-friable asbestos).

To be independent, the licensed asbestos assessor or competent person must not be involved in the removal of asbestos for that specific job and is not involved in a business or undertaking involved in the removal of the asbestos for that specific job.

The independent licensed assessor or competent person must not issue a clearance certificate unless they are satisfied that the asbestos removal area and the area immediately surrounding it are free from visible asbestos contamination. To do this, they can conduct a visual inspection for evidence of dust and debris. If air monitoring was also conducted, the results of that test must show that asbestos is below 0.01 fibres/ml of air.

If a clearance certificate has not been obtained, the asbestos removal area must not be re-occupied for normal use or other work activities. A clearance certificate must be issued before the area can be re-occupied for demolition or other work.

Unauthorised persons cannot enter the asbestos removal work area prior to a clearance certificate being issued and any protective barricades should remain in place until the completion of all licensed asbestos removal work and the final clearance certificate is issued.

All asbestos removal clearance certificates must be included in the asbestos register.

13 ACCIDENTS, INCIDENTS AND EMERGENCIES

Accidents, incidents and emergencies relating to ACM are most likely to entail a scenario where ACM at the site have been inadvertently disturbed or previously unknown ACM are discovered.

Response procedures to accidents, incidents and emergencies should be initiated and implemented in accordance with the following guidelines:

13.1 DAMAGE OR DISTURBANCE TO ACM

It is important to remember that the first priority must always be the safety of any persons, either workers or others in the immediate vicinity of the ACM.

All emergency action should take place as soon as possible after the event and the first priority is to stabilise the situation and to prevent further hazard or employee exposure.

If accidental damage occurs to any ACM that is likely to produce airborne asbestos fibres the area should immediately be vacated.

The A PCBU occupational health and safety representative should be informed.

The area should be isolated by hazard tape. Any mechanical ventilation in the area should be shut down.

All persons in the vicinity of the area must be informed of the access restrictions to the area.

A competent person should be contacted as soon as possible to assess the damage / disturbance. An appropriate course of remedial action will then be determined, including any clean-up works.

The area should not be re-occupied until deemed safe by the competent person.

13.2 DISCOVERY OF SUSPECTED ACM

If any material suspected of containing asbestos is discovered at the site that is not detailed in the asbestos register the material must not be disturbed. If the material has been damaged or disturbed the procedures detailed above should be followed.

The appropriate PCBU representative should be informed.

If the composition of the material cannot be determined the area should be isolated by hazard tape and a competent person contacted to assess the material. A sample of the material will most likely be collected for laboratory analysis for asbestos content.

The area should remain isolated until the results of analysis are available. If the material is found to contain asbestos the competent person should conduct a risk assessment and provide advice on an appropriate course of action.

The material must be labelled and included in the site asbestos register and HMMP.

13.3 **INCIDENT REPORTING**

Any incidents concerning the damage or disturbance of known ACM or previously unknown ACM should be recorded in an Asbestos Incident Report. The report should be carried out by an appropriate PCBU representative and include the following:

- Date and time of incident;
- Persons in the area at the time;
- Nature of the problem;
- Response action taken and date of action; and
- Noted for the purpose of updating the site Asbestos Register.

13.4 TABLE 1 – MATERIALS ASSESSMENT

Sample Variable	Examples	Score (circle)
Asbestos Type	All types (Chrysotile, Amosite and Crocidolite)	3
Product Type (Product Friability)	Asbestos reinforced composites (asbestos cement sheeting, vinyl tiles, electrical boards, resins, mastics, plastics, roofing felts, semi rigid paints and decorative finishes)	1
	Asbestos insulating board, mill board, low density boards, textiles, ropes, fabrics, felt and paper	2
	Thermal insulation including lagging, sprayed and loose asbestos and packing	3
Surface Treatment	Composite materials	0
	Asbestos cement, enclosed thermal insulation, encapsulated boards and textiles	1
	Non-encapsulated boards and textiles, encapsulated thermal insulation	2
	Unsealed thermal insulation	3
Extent of Damage	Good condition, no visible damage	0
	Low damage, a few scratches	1
	Medium damage, significant breakages, loose fibres visible	2
	High damage, visible asbestos debris	3
Total of above Scores		

Add the Score in each product variable.

The material assessment has a maximum score of 12

Non-asbestos materials will have no score

Material Assessment Scoring:

- A. (<4) **Very low potential to release asbestos fibres**
- B. (5-6) **Low potential to release asbestos fibres**
- C. (7-9) **Medium potential to release asbestos fibres**
- D. (10-12) **High potential to release asbestos fibres**

This scoring system should be used alongside a current risk assessment (see following pages) to provide accurate management of asbestos containing materials.

13.5 **TABLE 2 – PRIORITY ASSESSMENT**

Normal Occupant Activity – Non-maintenance		Average of these two scores =
Rare disturbance, e.g. little used store	0	
Low disturbance, e.g. office type environment	1	
Periodic disturbance, e.g. industrial or vehicular activity	2	
High disturbance, e.g. fire door in constant use	3	
Other Occupant Activity – Non-maintenance		
Rare disturbance, e.g. little used store	0	
Low disturbance, e.g. office type environment	1	
Likelihood of Disturbance (Location)		Average of these three scores =
Outdoors	0	
Large rooms >100m ²	1	
Rooms up to 100m ²	2	
Confined spaces	3	
Accessibility of Material		
Usually inaccessible	0	
Occasionally visited	1	
Easily visited	2	
Routinely visited	3	
Extent		Average of these three scores =
Small amounts (fuse boxes, single items etc.)	0	
<10m ² OR <10m run	1	
>10m ² but <50m ² OR 10m-50m run	2	
>50m ² OR <50m run	3	
Number of occupants		
None	0	
1 – 4	1	
4 – 10	2	
> 10	3	
Frequency of use		Average of these three scores =
Infrequently	0	
Monthly	1	
Weekly	2	
Daily	3	
Average time of use		
< 1 hour/day	0	
1 – 3 hours/day	1	
3 –6 hours/day	2	
> 6 hours/day	3	

Table 2 – Priority Assessment (continued)

Maintenance Activity		
Minor disturbance possible	0	Average of these two scores =
Low disturbance possible	1	
Medium disturbance possible	2	
High disturbance possible	3	
Maintenance Frequency		
Material unlikely to be disturbed	0	
< 1 activity per year	1	
> 1 activity per year	2	
> 1 activity per month	3	
Total of Priority Assessment Scores (sum of the four categories in Table 2 above)	=	
Material Assessment Score (from Table 1)	=	
TOTAL	=	

Risk Assessment Scoring:

- A. **Priority 1 (18+)** High risk material requiring urgent attention. The material should be removed as soon as practicable. Warning labels should be placed at the entrances to the materials location. Access to the area should be restricted. Persons entering the area are to wear appropriate PPE including respirators.
- B. **Priority 2 (14-17)** Medium risk material requiring priority attention. The material has the potential to release fibres if any further damage occurs to the material. The material requires regular inspections. Warning labels should be placed at the entrances to the materials location.
- C. **Priority 3 (9-13)** Low risk material requiring regular inspection. The material has low potential for fibre release in its current state but should be re-inspected on a regular basis for any deterioration or damage. These materials are not to be disturbed.
- D. **Priority 4 (2-8)** Minor risk material. The material should be re-inspected at the time of the next scheduled audit for any deterioration or damage. In its current state the material is of minor risk. The product is of low priority due to being fully concealed and in good condition. Care should be taken not to disturb the inner core with no drilling allowed. Ensure door is labelled. Consideration should be given to sampling/analysis of the door core prior to refurbishment and/or demolition to confirm the presence of asbestos.

Examples of Warning Labels can be found at Appendix D.

14 LEAD NOTES AND RECOMMENDATIONS

The results of the paint samples indicates that the paints used on some surfaces to the building are considered lead containing; that is greater than 1% lead. Paint and dust sample locations are detailed in Section 7 of this report.

Lead paint is defined as a paint film or component coat of a paint system containing lead or lead compounds in which the lead content (calculated as lead metal) is in excess of 1% by weight of the dry film as determined by laboratory testing.

There are no standards / limits set in NSW for lead contaminated dust in ceiling cavities.

For ceiling dust, EMS recommends using a guideline level of 1200 mg/kg (0.12%) which is the limit for the National Environmental Health Forum (NEHF) SIL (1998) 'residential with minimal access to soils'. This is under the assumption that the ceilings are in good condition and there are no penetrations or gaps from the roof cavity to the occupied area.

However, there are guideline levels for lead dust contamination of horizontal surfaces following lead paint remediation works or from deteriorating paint. Refer to the Australian Standards Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings AS 4361.2 - 1998. EMS uses these guideline levels to give approximate lead loading levels for horizontal surfaces (e.g. floors, window ledges etc.) when undertaking a Lead Assessment. It should be noted that these levels can only give an indication of health risk in the form of how much lead is in the dust and not the potential for the dust to become airborne and inhaled, absorbed or ingested. A lead exposure assessment would be required for this type of report.

The hierarchy of controls in relation to effectively managing and minimising the risks associated with hazards should be adopted so as to keep potential exposure as low as reasonably practicable. The order of the controls are as follows:

- Elimination (Removal) is the most preferred option and in regards to lead paint one that reduces dust generation, such as wet scrape methods or a full enclosure to mitigate the dust escaping should be used.
- Isolation is when access to the paint or dust is restricted either by either limiting access to the area or a physical enclosures or barricade.
- Encapsulation/sealing following stabilisation of deteriorated areas is where the paint system is painted over with non-lead based paints.
- Administrative controls to management the lead materials *in situ* which can be a Lead Management Plan and/or Lead Removal Scope of Works.
- PPE. The least preferred option is using appropriate personal protective equipment to minimise potential exposure to the lead. This should only be used during the remediation/removal process for the workers involved and not to stop occupants from coming in contact with the lead materials.

EMS recommends prior to any lead abatement works that pre (and post) works lead in soil testing is undertaken to soil areas surrounding the works zone (or property) to give baseline levels of any soil contamination already present. This is so the lead paint contractors are not liable for any post work contamination that may be identified that may have already existed.

Remediation of any lead contaminated dust is recommended as soon as reasonably practicable. EMS recommends that ceiling cavity dust and soil testing should be undertaken to identify if these areas contain any elevated levels of lead.

14.1 PRIORITY RATING FOR LEAD PAINT AND LEAD IN DUST

Priority Rating	Definition	Details	Time-Frame
Lead 1	Elevated risk level	Lead containing material that has been damaged or is unstable. If the material is disturbed it is likely to present an immediate health risk, with the likelihood that contamination may spread to surrounding areas. Control measures to stabilise or remove this material should be implemented as soon as possible. Includes dust with greater than 1mg/m ² lead in an occupied area.	Generally ASAP
Lead 2	Low-moderate risk requiring maintenance	Lead containing material that has minor damage requiring remedial action or is likely to be subject to damage or to degrade due to environmental conditions. It is recommended that maintenance work be performed, when practicable, to stabilise and repair or remove lead containing material prior to demolition. Includes dust with greater than 1% lead in an unoccupied area.	Generally within 2-4 months
Lead 3	Low risk under present conditions	Stable lead material that is unlikely to present a risk to health unless damaged, tooled, cut, sanded, abraded or machined. These materials must be maintained in good and stable condition. If paints are disturbed during demolition care should be taken not to create dust or litter the surrounding areas.	No time frame set for material in good condition
Lead 4	Negligible risk	Dust containing less than 1mg/m ² lead content in an unoccupied area. Can become airborne if disturbed. Consider removal using HEPA vacuuming at time of refurbishment.	N/A
Lead 5	Negligible risk	Paint containing less than 1% lead content.	N/A

14.2 LEAD IN PAINT – GENERAL NOTES

White lead (lead carbonate) was once the principal white pigment in paints for houses and public buildings. Its use was restricted in Queensland in 1923. In other states, paint with lead pigment was manufactured up until the late 1960s, although in diminishing quantities from 1950 onwards. In 1969, the National Health and Medical Research Council's Uniform Paint Standard was amended to restrict lead paint in domestic paint.¹

¹ Guide to lead paint management Part 2: Residential and Commercial buildings
Australian Standard AS4361.2-1998

Lead paint is defined as a paint film or component coat of a paint system containing lead or lead compounds in which the lead content (calculated as lead metal) is in excess of 1% by weight of the dry film as determined by laboratory testing.

Lead paint is generally not a hazard unless it is ingested or inhaled. There is minimal risk where paint is in a sound condition and not flaking or powdering. Lead paint only becomes a problem if it is on a friction or impact surface (eg sash window), is deteriorating or is disturbed by paint removal methods such as sanding or abrasive blast cleaning. Even mechanical scraping can create a health hazard. The removal of paint can create even greater damage than when the paint is peeling off since the particle sizes may be small enough to lodge in furnishings and carpets making removal difficult.²

If lead is present in paint that is still in good condition and it is not a friction or impact surface, it is not likely to present a health hazard unless disturbed by sanding or mechanical or water damage. However, if the paint is in poor condition (such as flaking, peeling or badly chalking) it may be a risk to those touching it or even removal by wind action.

Flaking of old lead paint from exterior surfaces is common even where a number of coats of more recent lead-free paints have been applied. These flakes usually settle on soil or paved areas and may be ingested or inhaled by the body.³

Renovation of buildings usually involves some disturbance to paint systems. Under such circumstances lower levels of lead paint can be made hazardous by unsafe practices. Even at levels of lead below 1% and as low as 0.25%, the dust generated by dry sanding or abrasive blast cleaning can have sufficient lead content to produce exposure levels exceeding those which define a lead task in NOHSC 1012. High concentrations of lead in dust have been shown as a result of the removal of paint with levels of lead less than 1%. Under such conditions renovation work would become subject to regulations in NOHSC 1012.⁴

Laboratory results express the lead content in absolute terms as in concentration by weight of paint either as a percentage or as mg/kg (also known as ppm or parts per million).⁵

14.3 LEAD REMOVAL WORKS

All areas where lead treatment/removal works are being carried out should be isolated by warning tape. Warning signs should be placed at all points of entry to these works area warning non-authorized personnel not to enter into these areas. The signs must comply with "AS 1319 - 1994 Safety Signs for the Occupational Environment".

Structures coated with lead based paints that are in a sound, and fair condition can be demolished and the demolition spoil can be disposed of as general demolition spoil. Workers carrying out the demolition works must wear personal protective equipment as specified below whilst carrying out these works. The demolition waste can be disposed of as general demolition spoil because past testing on similar waste has shown that the lead makes up an insignificant component of the overall waste.

² Section 1.5 Paint Hazard AS4361.2-1998

³ Section 2.3.1 Lead in deteriorating paint AS4361.2-1998

⁴ Section 2.3.2 Lead in paint during maintenance or renovations

⁵ Section 2.5.3 Laboratory analysis results AS4361.2-1998

The loose and flaking lead paint on structures that are to be demolished should be removed prior to the demolition works in accordance with the recommendations for lead paint removal outlined in this report.

The removal of the paint and dust containing lead should be carried out in such a manner as to minimise the generation of dust into the surrounding environment.

A designated showering facility should be set up for the use of the lead treatment personnel who are directly exposed to the dust during their working day. It should be mandatory for these workers to shower before leaving the site at the end of their working shift. Further, it should be mandatory for these personnel to wash their hands (and other areas of their bodies that are exposed to this dust during removal works) prior to smoking or ingesting food or drink. Under no circumstances should personnel smoke or ingest food or drink in the areas where removal of lead dusts and paints are being carried out.

The dust containing lead must be placed into air tight bags and disposed of as lead contaminated waste in a secure landfill facility approved by the Department of Environment and Climate Change of NSW.

Workers treating/removing dust and paint containing lead should undergo routine medical examinations as per the requirements specified by the WorkCover Authority of NSW.

14.3.1 Lead Contaminated Dust

If there is lead contaminated dust and paint flakes present they should be removed and disposed of as lead contaminated waste to ensure that no more of the contaminated dust enters into the storm water system and the Sydney Harbour.

The dust should be removed using vacuum cleaners fitted with HEPA filters to minimize the generation of lead dust into the atmosphere.

14.3.2 Lead Paint

The lead paint which is in a sound or fair condition may be stabilised and painted over. Details of the requirements of this treatment option are detailed in Section 12.3 of this report.

The lead paint that is in a poor to extremely poor condition and cannot form a stable base for painting over should be removed prior to the commencement of refurbishment works. The options for the removal of lead based paints are detailed in Section 12.3 of this report.

14.3.3 Safety Procedures

- All employees should be inducted in the safety procedures pertaining to lead treatment and abatement works.
- All employees should be inducted on the correct use of any plant and equipment (ie water jets, wet-vacs, etc).
- Check safety tags of all electrical equipment to be used during the lead treatment and abatement works.
- Check all safety data sheets.
- All employees are to wear suitable protective clothing (ie disposable overalls, boots, helmets, goggles, gloves as required) during their working shifts.

- All lead treatment and abatement work areas are to be free of debris, obstacles, power points, electrical conduits, etc.
- All lead treatment and abatement works areas are to be isolated with barricades, bunting or safety tape.
- All access points to the lead treatment and abatement work areas are to clearly display warning signs.
- Protect floor of lead paint removal areas with heavy-duty polythene sheeting.
- A designated area must be set up to temporarily store bagged lead waste. Warning signs must be clearly visible in this area.
- First aid equipment and containers of clean water are to be kept close to work areas where chemical paint stripping is being carried out.
- No person, other than employees wearing protective clothing, is to be allowed access to designated work areas.
- Workers cannot eat, drink or smoke within the work area.
- Workers must remove protective clothing in a nominated area after leaving the work area.
- Workers must wash thoroughly before eating, drinking or smoking.
- All disposable protective and plastic sheeting, etc is to be treated as solid contaminated waste.

14.3.4 Personal Protective Equipment

All personnel carrying out lead treatment/removal works should wear the following personal protective equipment:

- hard hats;
- safety boots with steel caps;
- Bilsom RP 162 double respirator breathing masks or similar;
- goggles; and
- gloves.

14.3.5 Air Monitoring

Air monitoring should be carried out during the removal of lead based paints because of the high levels of lead in some of the paint coatings and the sensitive location of the site.

Air monitoring should be carried out by a NATA accredited hygiene company such as Environmental Monitoring Services.

Air monitoring should be carried out near the workface and at the boundary of the lead removal work area to assess the effectiveness of dust suppression techniques used during the removal of the lead based paints.

14.4 OPTIONS FOR LEAD PAINT MANAGEMENT

14.4.1 General

If a building contains lead paint, the paint needs to be managed to prevent it becoming a health hazard. Depending on the particular circumstances, the options for management of lead paints usually include:⁶

- doing nothing;
- stabilising the paint;
- carrying out abatement; or
- a combination of these options.

14.4.2 Doing Nothing

To do nothing is an option when the lead paint is in sound condition and does not need to be disturbed for other reasons such as renovations. Generally the 'do nothing' option is only applicable to the lead paint that is not directly accessible or where lead is in underlying layers of paint which has been painted over with lead free paint. Leaving the lead paint in place creates the need for regular inspections for deterioration.⁷

14.4.3 Lead Paint Stabilisation

The easiest and cheapest way to manage lead paint is to paint over it using lead free paint, or by covering it over with an encapsulant. This is known as stabilisation and can provide an interim to long term solution to a lead paint hazard allowing more permanent treatment to be deferred until changes in circumstances occur and more information becomes available regarding safe disposal of waste. Materials used to stabilise lead paint surfaces need to be durable and non toxic in themselves.⁸

14.4.4 Preparing the Surface

Stabilisation involves applying a covering directly over the existing paint. The effectiveness of this covering relies on adhesion to the existing paint. Therefore, it is only an option if the existing paint is in a sufficiently sound condition to provide the required adhesion and is free of damage. Defects in the paint or in the substrate itself should be rectified prior to applying the covering. When the paint is flaking in places, some removal will be carried out to prepare the surface. Usually the existing paint will need to be washed to remove grease grime or dirt. This is best accomplished by using sugar soap (tri sodium phosphate). Remove a glossy surface by wet sanding or by using a suitable de-glossing solution. Small areas of flaking and peeling paint will normally require rectification prior to stabilisation.⁹

⁶ 3.1 General Options for Lead Paint Management AS4361.2-1998

⁷ 3.2 Doing Nothing Options for Lead Paint Management AS4361.2-1998

⁸ 3.3 Lead Paint Stabilisation AS4361.2-1998

⁹ 3.3.2 Preparing the surface AS4361.2-1998

14.4.5 Lead Paint Abatement

Lead paint abatement involves the suppression, reduction or elimination of the hazard from the building. Abatement will be necessary if the lead paint presents a hazard in its present state and if encapsulation is either not viable due to the poor condition of the surface or it is not considered for other reasons.¹⁰

14.4.6 Replacement of Painted Items

The least hazardous way of dealing with lead paint is by replacement of the painted article where this is appropriate. In this process components with lead paint on them are removed in large pieces and replaced with new materials. This may be a viable option for articles such as timber architraves, doors and windows, cupboards, gutters and downpipes, and exterior cladding weatherboards. Other advantages are that labour requirements and work can often be completed quickly. Current regulations in most states would allow for the disposal of these materials as regular construction waste. The cost of supplying replacement materials may be high especially with items such as doors and windows.

Note: When dealing with historical or heritage buildings, replacement of components may not be possible.¹¹

14.4.7 Enclosure

Enclosure has a low potential for hazardous dust generation thus minimising the risk of exposure to the renovator and to the occupants. With the enclosure the lead paint remains in position.¹²

14.4.8 Removal of Lead Paint

Removal of lead paint has the greatest potential to generate hazardous dust. In all cases adequate ventilation should be provided appropriate to the contaminant being generated. This may include mechanical ventilation and should not conflict with site containment requirements. Following are two (2) recommended methods for the removal of lead paint to minimise the quantities of dust generated.

14.4.9 Wet Scraping and Wet Sanding

Wet scraping and wet sanding generates a minimum of dust and is among the safest methods for the removal of lead paint.

This method involves moistening the paint with water from an atomiser bottle or similar device and then removing the paint from the surface using a scraper or a sander, usually hand held. Drop-sheets of thick impervious plastic are used to catch the debris for collection and disposal.

Scraping and sanding can be slow and further cleaning or smoothing may be needed to remove residues or feather edges. Scraping and sanding may also lead to damage of soft substrates such as plaster or softwood.

¹⁰ 3.4 Lead Paint Abatement General AS4361.2-1998

¹¹ 3.4.2 Replacement of painted items AS4361.2-1998

¹² 3.4.3 Enclosure items AS4361.2-1998

The runoff from wet sanding and scraping will carry suspended particles which should be controlled. Runoff should not be allowed to escape between the floorboards, into or under floor coverings or behind architraves. If runoff is allowed to escape it may dry out and regenerate lead dust levels.

14.4.10 On Site Chemical Stripping

Chemical stripping will soften and swell the paint allowing it to be easily removed with a scraper. The residue is usually a gel-like paste that is easily contained and handled. Stripping is suitable for most surfaces such as timber, render or steel.

Some waterborne strippers are caustic and require skin, face and eye protection during use, as well as protection of non-target surfaces. Some chemical strippers contain flammable or hazardous volatile solvents. Some chemical strippers may cause damage to certain substrates and should be tested. Waste from chemical strippers should be collected and prevented from entering the sewer or stormwater drains.

14.4.11 Containment

An essential part of managing lead paint is the containment of the work. Containment includes all procedures and systems that prevent dust and debris spreading from the immediate work area. Containment includes physical barriers to prevent the travel of dust, the exclusion of occupants or the public from the work area, security of the work area and regular cleaning up and disposal of debris.

Regardless of which option is chosen to manage the paint, an appropriate degree of containment will need to be installed prior to carrying out the work. Ventilation provided should not conflict with the containment requirements.

Lead paint scrapings and debris are classed as hazardous waste and require special disposal methods.

14.5 REFERENCES

AS 4361.2 (1998). Guide to lead paint management. Part 2 Residential and commercial buildings.

Control Of Inorganic Lead At Work National Standard for the Control of Inorganic Lead at Work [NOHSC:1012(1994)]

15 APPENDIX A – ASBESTOS REGISTER WITH PRIORITY RATING

Workplace Address: Walsh Bay Properties
Name of competent person: Mark Wagner, WorkCover NSW Asbestos Assessor Licence No LAA001009
Edward Krasilovsky, WorkCover NSW Asbestos Assessor Licence No LAA001095
Date of Assessment: 7th and 9th December 2016

Sample No.	Description	Specific Location	Friable/ Non-friable	Condition	Extent	Material Labelled?	Date last Inspected	Action Details Date Removed/ Clearance Certificate No.	Priority Score	Priority Rating
Assumed	EBB	Wharf 4/5 – Above door height on exterior facade	Non-friable	Intact	Several backing boards	No	07/12/16		6	Priority 4
Assumed	FCS	Wharf 4/5 – Panelling on exterior of upper levels of all sides of buildings	Non-friable	Intact	>100m ²	No	07/12/16		7	Priority 4
Assumed	Fire door core	Wharf 4/5 – Adjacent to Props Department on Ground Floor	Friable if exposed	Intact	Single door	No	09/12/16		7	Priority 4
Assumed	EBB	Wharf 4/5 – Ground Floor Sets Department	Non-friable	Intact	Single backing board	No	09/12/16		7	Priority 4
Assumed	FCS	Shore Shed 4/5 – Panelling on exterior of upper levels	Non-friable	Intact	>20m ²	No	07/12/16		6	Priority 4
Assumed	EBB	Shore Shed 4/5 – Pump Room, within Unmetered Link Box and Service Fuses Supply Box	Non-friable	Intact	Several backing boards	No	07/12/16		7	Priority 4
Assumed	FCS	Pier 2/3 - Panelling on exterior of upper levels of all sides of buildings	Non-friable	Intact	>100m ²	No	09/12/16		7	Priority 4

Notes:

- **Please refer to Section 6 for definitions of priority ratings.**
- This register should be reviewed at least once every five (5) years to ensure it is kept up-to-date. ¹³
- For more detailed information on the above ACM including the sample analysis results refer to the Site Hazardous Materials Register – Report No EMS16 4447, Issued 21st December 2016.
- FCS = Fibre Cement Sheeting
- EBB = Electrical Backing Board
- The Action Details text box is to be filled in by hand on site at the completion of asbestos works such as encapsulation or removal.
- All extents given are approximate only. For the purpose of removal it is recommended that a separate specific assessment be made.
- Areas that could not be accessed are assumed to contain asbestos as per the Work Health and Safety Regulation 2011.
- All samples were analysed by a NATA accredited laboratory, please refer to Appendix B of the Hazardous Materials Register for the laboratory report.

¹³ *Work Health and Safety Regulation 2011 – Clauses 426 and 430*

16 APPENDIX B - LEAD PAINT REGISTER

Sample No.	Location	Colour	Condition	Extent	Lead Content (%)	Priority
L2294	Wharf 4/5 & Pier 2/3 – External sliding doors	Light Blue	Intact	All sliding external doors	2.7	Lead 3
L2295	Wharf 4/5 & Pier 2/3 – Outmost paintwork to external timber cladding. Likely to contain higher levels of lead at base layers and within actual timber cladding	Blue	Intact	All external timber cladding	0.3	Lead 3*
L2296	Wharf 4/5 & Pier 2/3 – Paintwork to external timber cladding	White	Intact	All external timber cladding	2.3	Lead 3
L2297	Wharf 4/5 – Paintwork to ground level slab on western side of wharf	Blue	Flaking	To slab	<0.05	Lead 5

In order to be classified lead based paint, the lead content must be > 1% w/w.

* Treat blue paintwork as if it is Lead containing.

17 APPENDIX C – ASBESTOS MAINTENANCE RECORD

Site Address:

Walsh Bay Properties

Company performing the works	Supervisor in charge of the works	Asbestos Licence No	Phone No	Materials removed and/or repaired or encapsulated	Date of works

Site Address:

Walsh Bay Properties

Company performing the works	Supervisor in charge of the works	Asbestos Licence No	Phone No	Materials removed and/or repaired or encapsulated	Date of works

18 APPENDIX D – EXAMPLES OF WARNING SIGNS AND LABELS

