



Douglas Partners

Geotechnics | Environment | Groundwater

Asbestos Management Plan

Botany Rail Duplication Project
Mascot

Prepared for
John Holland Pty Ltd

Project 207996.00
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Integrated Practical Solutions



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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.


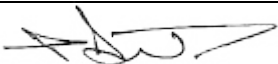
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Asbestos Management Plan Botany Rail Duplication Project

1. Introduction

Douglas Partners Pty Ltd (DP) has been engaged by John Holland Pty Ltd (JH) to prepare this Asbestos Management Plan for the Botany Rail Duplication at Mascot (the site). The site is shown on Drawing 1, Appendix A.

The report has been produced in accordance with DP's proposal P0207996.00 dated 23 August 2021.

This report outlines general requirements that apply to removal of friable and non-friable asbestos in soil / fill. These requirements are based upon the:

- NSW Work Health and Safety (WHS) Regulation 2017, Chapter 8 Asbestos;
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*;
- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- WA DoH *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia* (WA, 2021).

Reference should be made to the NSW WHS Act 2011, NSW WHS Regulation 2017 and the SafeWork NSW *Code of Practice: How to Safely Remove Asbestos* for a more comprehensive guide to the requirements that apply to asbestos removal work.

2. Site Description

The site is situated in the rail corridor between King Street, Mascot and Stephen Road, Botany and is approximately 3km in length.

The site is located within the Bayside Council and is currently used as a rail corridor surrounded predominantly with commercial, industrial, including Sydney Airport and with some pockets of residential areas.

Asbestos-containing materials have been identified between Stephen Road and the Mill Stream as asbestos fibres, loose fibre bundles and fragments of asbestos sheeting in fill, and fibre cement debris at the ground surface, as shown on Drawing R.007.001.1A, Appendix A (DP Sampling and Analysis Quality Plan, *Botany Rail Duplication - EIS Section Mascot*, reference 207996.00.R.002.DraftB, dated 13 October 2021 (DP, 2021)). However, given the potential for inter alia fly tipping along a railway corridor, possible uncontrolled fill and the close proximity of buildings which potentially include ACM in their construction it is possible that ACM could be encountered anywhere within the site.

3. General Requirements

3.1 Implementation

Should the requirements outlined in this report conflict with the requirements of relevant legislation, standards, codes, guidelines, or remediation / management plans developed for the site, then the more stringent requirement shall take precedence.

Any queries regarding implementation or interpretation of this report should be directed to the Principal in the first instance. It is the responsibility of the Principal to respond to such queries and, where necessary, refer such queries to a suitable technical advisor for prior clarification and / or advice.

If the Consultant is not engaged directly by the Principal then the Principal should consider obtaining independent technical advice on relevant issues, such as asbestos assessment and management, from a suitably licensed, qualified and experienced environmental consultant.

3.2 Compliance

All work shall comply with relevant legislation and subordinate instruments (e.g., standards, codes and guidelines). The regulatory framework that applies includes, but is not necessarily limited to, the following documents and their subordinate instruments as in force from time to time:

- NSW Work Health and Safety Act 2011 (WHS Act);
- NSW Work Health and Safety Regulation 2017 (WHS Regulation);
- SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace*;
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*;
- *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC:3003(2005)];
- AS1319 *Safety Signs for the Occupational Environment*;
- AS/NZS 1716 *Respiratory Protective Devices*;
- AS/NZS 1715 *Selection, use and maintenance of respiratory protective equipment*;
- AS4260 *High efficiency particulate air (HEPA) filters - Classification, construction and performance*;
- AS/NZS 60335.2.69 *Household and similar electrical appliances - Safety - Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use*; and
- NSW EPA *Waste Classification Guidelines, Part 1: Classifying Waste*, November 2014 (EPA, 2014).

In the case of conflict between this report and any legislation or subordinate instrument (e.g., standard, code or guideline) the more stringent requirement shall apply.

3.3 Removal Method

The method(s) used for asbestos removal shall at all times comply with relevant legislation and subordinate instruments (e.g., codes, standards and guidelines) (including those listed in Section 3.2) and the requirements of the relevant regulator(s) and authorities including SafeWork NSW.

3.4 Notifications

The Licensed Asbestos Removalist shall make all necessary notifications required by the relevant authorities and legislation to undertake the asbestos removal work. This includes notifying SafeWork NSW of licensed asbestos removal work.

3.5 Community Consultation

Appropriate community consultation shall be undertaken at all stages of asbestos removal work, and this includes ensuring that all relevant parties, including the following, are adequately notified of the asbestos removal work:

- Controller(s) and occupants of the site where the licensed asbestos removal work is occurring; and
- Owners and occupants of properties in the direct vicinity of the site where licensed asbestos removal work is occurring.

3.6 Isolations

All isolations required to conduct the asbestos removal work in a safe and effective manner shall be made prior to the work commencing. This includes electrical, gas, water and all other relevant services. All isolations are to be made by suitably licenced, qualified and experienced personnel in accordance with relevant legislation (including the WHS Act and Regulation) and subordinate instruments.

3.7 General Dust Control

General dust emissions during the asbestos removal work are eliminated or, if elimination is not reasonably practicable, minimised to the extent reasonably practicable. These controls are in addition to any other dust controls required specifically for asbestos, such as enclosure of the asbestos removal areas under the WHS Regulation, Clause 477(1) (a).

General dust emission controls are to include the following where necessary:

- Use of dust suppressors on all relevant tools / equipment;
- Erection of dust screens around the perimeter of the work site(s);
- Securely covering all loads entering or exiting the site(s);
- Use of water mist / spray to suppress dust;

- Minimising stockpile height;
- Covering stockpiles remaining in place more than 24 hours; and
- Keeping excavation surfaces moist.

In addition, the following are to be ensured:

- Vehicles do not track soil, mud or sediment onto any road outside the work site(s);
- Vehicle access to the work site(s) is stabilised to prevent the tracking of sediment onto the roads, footpaths and other areas;
- Soil, earth, mud and similar materials are removed from roadways that adjoin the work site by suitably controlled sweeping, shovelling, or a means other than washing, on a daily basis or as required; and
- All loads are securely covered to prevent any dust or odour emissions during transportation.

3.8 Stockpiles

The following are to be ensured:

- Stockpiling is only permitted within the approved construction site boundaries;
- All stockpiles of soil and other materials are placed in approved low hazard areas away from drainage lines, gutters and stormwater pits or inlets;
- All stockpiles of contaminated material shall be surrounded by star pickets and marking tape or other suitable material to clearly delineate their boundaries;
- Stockpiles shall be lightly conditioned by sprinkler or covered by geotextile or similar cover to prevent dust generation;
- Any stockpile to remain on-site overnight should be adequately secured in order to reduce the risk of sediment runoff;
- Should the stockpile remain on-site for over 24 hours, geotextile silt fences must be erected to prevent losses by surface erosion; and
- All stockpiles must be placed on a level area as a low (less than 2 m in height), elongated mound with a maximum slope of 2:1 (H:V).

3.9 Asbestos Decontamination Facilities

Appropriate asbestos decontamination facilities are to be provided for all personnel, plant and equipment for the duration of the asbestos removal work including the asbestos clearance and validation process. The decontamination facilities shall comply with the requirements of all relevant legislation, codes of practice, standards and guidelines including the:

- WHS Regulation; and
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*.

All personnel will be required to use the decontamination facility for access to and egress from the asbestos removal area.

All wastewater generated by decontamination shall be deemed to contain asbestos and shall be classified and disposed of in accordance with relevant legislation and EPA (2014).

Personnel must not smoke, eat or drink in any part of the decontamination facilities or within the designated asbestos removal area.

The decontamination facilities shall be cleaned daily by personnel equipped with the appropriate PPE.

The decontamination facility shall be deconstructed, and the area remediated at the completion of the asbestos removal works.

3.10 Waste Classification and Disposal

All waste shall be classified for disposal in accordance with relevant legislation and the EPA (2014). All waste shall be disposed at a waste collection facility that is licensed to receive the waste. All disposal receipts shall be retained.

Asbestos waste is preclassified as Special Waste under EPA (2014) and shall be treated accordingly. Asbestos transporters and facilities receiving asbestos waste must report the movement of asbestos waste to the EPA. Entities involved with the transport or disposal of asbestos waste in NSW, or arranging the transport of asbestos waste in NSW, must use the EPA's online tool, WasteLocate.

4. Safety Documents

4.1 Safety Management Plan

A project specific Safety Management Plan (SMP) shall be developed for the work. The SMP must comply with the NSW WHS Act and Regulation.

4.2 Asbestos Removal Control Plan

The Licensed Asbestos Removalist shall develop and maintain a project specific Asbestos Removal Control Plan (ARCP) for the licensed asbestos removal work as required by the WHS Regulation (e.g., Clauses 464 and 465). The ARCP must comply with the WHS Regulation and SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*.

4.3 Safe Work Method Statements

Safe Work Method Statements (SWMS) shall be developed for all relevant activities and tasks undertaken as part of the asbestos removal work. All personnel conducting the work shall read and sign the relevant SWMS's before commencing the work.

4.4 Review

The SMP, ARCP and SWMS shall be reviewed and updated on a regular basis and as required under the WHS Act and WHS Regulation.

4.5 Toolbox Talks

Toolbox talks as required throughout the asbestos removal work. All personnel involved in the site work will be required to attend the toolbox talks. A formal written account of each toolbox talk shall be prepared and shall be signed by all relevant workers in attendance.

5. Asbestos Management Strategy

5.1 Asbestos Contamination Status

Asbestos-containing materials have been identified between Stephen Road and the Mill Stream as asbestos fibres, loose fibre bundles and fragments of asbestos sheeting in fill, and fibre cement debris at the ground surface, as shown on Drawing R.007.1A, Appendix A (DP *Sampling and Analysis Quality Plan, Botany Rail Duplication - EIS Section Mascot*, reference 207996.00.R.002.Draft B, dated 13 October 2021 (DP, 2021)). However, given the potential for inter alia fly tipping along a railway corridor, possible uncontrolled fill and the close proximity of buildings which potentially include ACM in their construction it is possible that ACM could be encountered anywhere within the site.

5.2 Management Options

The following typical management options are available for asbestos contaminated soils:

- No action.

This option is not considered viable as asbestos presents a risk to the public and future site users if the risk is not managed appropriately.

- Further assessment of material for on-site re-use.

This option would require further assessment of soils to estimate asbestos concentrations in soil. It is noted that this option would not be viable in areas where friable asbestos has been detected and therefore generally may not be suitable given the risk for further friable asbestos to be present. It is also noted that multiple fragments of bonded asbestos were identified within areas of the site between

Stephen Street and the Mill Stream, and these are less likely to be within health screening levels for asbestos in soil. Additional anthropogenic materials found in conjunction with asbestos are also likely to pose aesthetic concerns.

- On-site treatment of contaminated material for on-site re-use.

This option may be suitable in areas where minimal quantities of bonded asbestos are noted in surficial soils. This option may entail removal through 'emu picking' of soils, however, this would require available space, and additional time to successfully remove the asbestos. Treated soils would require further testing to evaluate whether the soils have been successfully treated. This option would not be feasible for friable asbestos contaminated soils.

- On-site containment of contaminated material.

This option presents a strategy to minimise generation of waste materials, however it would require available space at depth to contain the materials under a suitably constructed capping layer. This option would also require the development of a legally enforceable long-term environmental management plan (EMP).

- Removal of contaminated material to landfill.

This option will allow for the removal of friable asbestos contamination which otherwise is not suitable for the other management strategies.

6. General Procedure for Asbestos Removal

6.1 Asbestos Removal

6.1.1 Pre-Work Requirements

The asbestos removalist is to be licensed to conduct the asbestos removal work in accordance with the WHS Regulation. A Class A (friable) asbestos removal license is required for friable asbestos removal work. A Class A (friable) or Class B (non-friable) license is required for non-friable asbestos removal work.

The licensed asbestos removalist must make all notifications to, and obtain all permits from, SafeWork NSW prior to the commencement of asbestos removal work. A copy of the notification(s) and permit(s) is to be provided to the Principal Contractor and also displayed in a prominent position at the site during the asbestos removal work.

An appropriately trained and experienced supervisor is to be appointed by the licensed asbestos removalist for the duration of the asbestos removal work.

All personnel employed by the licensed asbestos removalist are to be licensed, certified and appropriately trained in accordance with the requirements of the WHS Regulation.

An appropriate level of consultation shall be conducted with relevant stakeholders and all relevant areas surrounding the asbestos removal area, and associated work site, shall be adequately vacated (if necessary) for the duration of the asbestos removal work.

6.1.2 Site Establishment

The following shall be ensured during site establishment:

- Access to the work site and the asbestos removal area is adequately restricted;
- Appropriate warning signage is installed;
- Compliant decontamination facilities for personnel, tools, equipment and plant etc. are installed;
- In the case of friable asbestos removal that requires enclosure, an appropriate enclosure is installed;
- All relevant isolations have been made;
- All vents, windows, doors and any other openings / penetrations that might otherwise permit dispersal of contamination are sealed safely; and
- Non-essential personnel are not present in the asbestos removal area.

Platforms and fixed scaffolding, if required, should be erected during the early stages of the work.

6.1.3 Removal of Friable Asbestos

The procedure below outlines the general approach to removal of friable asbestos. This procedure is provided as general guidance only. Reference should be made to the WHS Act, WHS Regulation and the SafeWork NSW *Code of Practice: How to Safely Remove Asbestos* for a more comprehensive guide to the requirements that apply to asbestos removal work.

All friable asbestos removal work must be undertaken by Class A (friable) licensed asbestos removal contractor.

The following shall be ensured in addition to, and in replacement of (where appropriate), the requirements for non-friable asbestos removal work (refer Section 6.1.4):

- Personnel involved in the removal of the friable asbestos wear appropriate PPE, identified via a suitable risk assessment, which may include the following as a minimum:
 - A full-face, particulate filter (cartridge) respirator with Class P3 filter for removal of a small quantity of friable asbestos; and
 - Disposable coveralls, boot covers and appropriate gloves.

A higher level of respiratory protection may be required in some cases, such as where wetting of friable asbestos is ineffective and / or where work is being undertaken in a confined area.

Disposable coveralls are to be rated type 5, category 3 (prEN ISO 13982-1) or equivalent and disposable boot covers are to be made of the same material.

Gumboots may be used as an alternative to boot covers (if required) but must only be worn in the asbestos removal area unless fully decontaminated using appropriate decontamination facilities.

Coveralls are to be rolled over the outside of boot and gloves and taped in place.

PPE is to comply with applicable Australian Standards including those listed in Section 3.2.

- The asbestos removal area is enclosed to prevent the release of respirable asbestos fibres (per Clause 477 in the NSW WHS Regulation) as far as reasonably practicable;
- The effectiveness of the enclosure is initially tested (where applicable) and regularly monitored while asbestos removal work is underway (e.g., by visual examination and air-monitoring etc.);
- Enclosure design and installation should carefully consider (but not be limited to) construction materials and methods, location of decontamination units and change areas, number and location of negative pressure exhaust units, lighting, temperature, number of workers and activities undertaken, and relevant project-specific hazards;
- An appropriate hoarding (or similar), inclusive of suitable buffer zones, is installed where necessary to form a barrier between the asbestos removal work area and adjoining occupied areas if necessary;
- Work methods and rates are adapted to the work environment based on risk assessment and considering factors such as precipitation, wind and other environmental conditions;
- Wet methods of asbestos removal (e.g., wet spray method) are used where reasonably practicable. The dry removal method can only be used if the wet methods are not suitable (e.g., if there are live electrical conductors or if major electrical equipment could be permanently damaged or made dangerous by contact with water);
 - The wet spray method:
 - Requires the use of a constant low-pressure water supply for wetting down asbestos using a mains-supplied garden hose fitted with a pistol grip or similar;
 - Involves applying a fine water spray to the asbestos in a manner that ensures the entire surface of the asbestos is saturated and the runoff is minimised. The asbestos should be maintained in a wet condition throughout the removal;
 - May be aided by adding a wetting agent (surfactant), for example detergent, to the water to facilitate more rapid wetting of the asbestos. In such a case, careful consideration must be given to selection and application of the wetting agent so as to ensure that any potential environmental impact is avoided;
 - The asbestos should be wetted through to its full depth and the water spray should be directed at the site of the cut / disturbance. The wetted material should be removed as the cut / disturbance progresses; and
 - Immediately after the asbestos is removed from its fixed or installed position, spray should be directed on the sides of the material previously not exposed.
- The asbestos removal work area does not commence until the air monitoring is started by an independent LAA;
- Air monitoring is undertaken during the asbestos removal work at times decided by the independent LAA undertaking the air monitoring;
- The condition of the enclosure and decontamination facilities is visually inspected on a regular basis to ensure that it effectively contains any airborne asbestos generated during asbestos removal work;

- The enclosure is fully decontaminated prior to clearance and dismantling in order to minimise, so far as is reasonably practicable, the release of respirable asbestos fibres.
- At the completion of asbestos removal work an interim clearance inspection is conducted by the LAA inside the asbestos removal enclosure;
- Upon receipt of acceptable results for the interim clearance inspection all relevant surfaces within the enclosure are sprayed with a dilute PVA emulsion using an airless sprayer;
- Once the PVA emulsion has dissipated and dried, interim clearance air monitoring is conducted by the LAA inside the asbestos removal enclosure;
- The asbestos removal enclosure is not dismantled until the written results of the interim clearance inspection and air monitoring are received by the Contractor;
- Control air monitoring is conducted by the LAA around the asbestos removal enclosure during enclosure dismantling;
- Temporary structures potentially contaminated with asbestos during the work must be disposed of as asbestos waste if they cannot be adequately decontaminated. This includes all polyethylene sheeting and tape used to construct enclosures;
- At the completion of enclosure dismantling a final clearance inspection and final clearance air monitoring is conducted by the LAA;
- The results of all clearance air monitoring show that the respirable asbestos fibre level is <0.01 fibres/ml; and
- Upon receipt of acceptable written results for the final clearance inspection and air monitoring the asbestos removal area reverts back to normal occupation.

6.1.4 General Removal Procedure - Non-Friable Asbestos

The procedure below outlines the general approach to removal of non-friable asbestos. This procedure is provided as general guidance only. Reference should be made to the WHS Act, WHS Regulation and the SafeWork NSW *Code of Practice: How to Safely Remove Asbestos* for a more comprehensive guide to the requirements that apply to asbestos removal work.

The following shall be ensured:

- Personnel involved in the removal of the non-friable asbestos wear appropriate PPE, identified via a suitable risk assessment, which may include the following as a minimum:
 - Disposable half-face particulate respirators, or half-face particulate filter (cartridge) respirators, with Class P1 or P2 filters; and
 - Disposable coveralls, boot covers and appropriate gloves.

Disposable coveralls are to be rated type 5, category 3 (prEN ISO 13982-1) or equivalent and disposable boot covers are to be made of the same material.

Gumboots may be used as an alternative to boot covers (if required) but must only be worn in the asbestos removal area unless fully decontaminated using appropriate decontamination facilities.

PPE is to comply with applicable Australian Standards including those listed in Section 3.2. <https://www.saiglobal.com/online/Script/Details.asp?DocN=AS0733790003AT>

- The asbestos materials are wet down with a fine water mist or PVA solution prior to removal. The use of high-pressure water spray and compressed air on asbestos or ACM is specifically prohibited under the WHS Regulation;
- Tools and equipment that cause the release of asbestos, including power tools and brooms, are only used on asbestos if the equipment is enclosed and / or designed to capture or suppress asbestos fibres and / or the equipment is used in a way that is designed to capture or suppress asbestos fibres safely. In such a case, other controls including PPE may also be required based upon the results of a pre-work risk assessment and the SWMS adopted;
- The asbestos removal work area does not commence until the air monitoring is started by an independent LAA or Competent Person;
- Air monitoring is undertaken during the asbestos removal work at times decided by the independent LAA or Competent Person undertaking the air monitoring;
- Wetting down of all asbestos materials is maintained throughout the removal process with care taken to avoid generating free water and slip hazards;
- At completion of bulk asbestos removal all relevant items / surfaces are thoroughly decontaminated by vacuum and wet-wiping techniques wherein:
 - Asbestos vacuum cleaners should comply with the Dust Class H requirements in AS/NZS 60335.2.69 *Household and similar electrical appliances - Safety - Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use* or its equivalent;
 - Filters for asbestos vacuum cleaners should conform to the requirements of AS4260 *High Efficiency Particulate Air Filters (HEPA) - Classification, Construction and Performance* or its equivalent. Household vacuum cleaners must never be used where asbestos is or may be present, even if they have a HEPA filter;
 - Rags used in wet-wiping should only be used once, although they may be refolded to expose a clean surface. The rags should be used flat and should not be wadded. If a bucket of water is used, the rags should not be re-wetted in the bucket as this will contaminate the water. If the water is contaminated, it must be treated as asbestos waste; and
 - All vacuum bags, HEPA filters, water and rags used for wet-wiping are disposed of as asbestos waste.
- At the completion of asbestos removal all used disposable PPE is double bagged in 200 micron thick asbestos waste bags for disposal. Waste bags should be filled no more than half full and sealed using heavy duty adhesive tape;
- Asbestos waste is to be placed carefully into waste skips and / or trucks in a manner that minimises the risk of generating airborne dust. Asbestos is not to be dropped into skips / trucks;
- The skips / trucks receiving asbestos waste are double lined with 200 µm thick polythene sheeting and the asbestos waste sealed inside (e.g., with heavy duty adhesive tape);
- Trucks receiving asbestos waste are fitted with automatic retractable covers to cover the sealed load during transport;
- Plant / truck operators remain in a safe location during loading activities. If plant / truck drivers remain within their cabin during loading then all windows must be wound up and air conditioning placed on re-cycle;
- If at any point during the work significant visible airborne dust is generated that work ceases and does not recommence until appropriate controls have been implemented to prevent recurrence;

- Transport and final disposal of asbestos waste material is carried out by the Contractor in a manner that prevents the liberation of asbestos dust into the atmosphere. Vehicles licensed for the transportation of asbestos waste shall only be used;
- All asbestos is disposed at a legally approved and licensed waste disposal facility;
- Copies of all tipping dockets are provided to the Principal;
- The asbestos removal area undergoes a clearance inspection conducted by a Competent Person who is independent from the Contractor to ensure asbestos materials have been removed to a satisfactory standard;
- After a successful clearance inspection, all relevant surfaces (which may exclude ground surfaces comprising soil / fill) within the asbestos work area are sprayed with PVA solution or similar binding agent;
- Air clearance monitoring is carried out inside the asbestos work area following successful completion of the visual inspection and drying of PVA (if used);
- Upon receipt of the final air monitoring clearance results of <0.01 fibres/mL, a final written clearance report is issued; and
- Upon receipt of the final written clearance results normal re-occupation of the asbestos removal area can occur.

7. Inspection and Monitoring

7.1 Clearance Inspections

The following shall be ensured:

- A Licenced Asbestos Assessor (LAA) or Competent Person¹ conducts an asbestos clearance inspection at the completion of licenced asbestos removal work; and
- A written clearance certificate is issued by the LAA or Competent Person prior to normal re-occupation of the asbestos removal area(s).

Clearance inspection(s) for friable asbestos removal work must be conducted by an LAA. Clearance inspection for non-friable asbestos removal work must be conducted by a Competent Person which may include a LAA.

The person conducting the clearance inspection must be independent meaning they:

- Did not undertake the asbestos removal work; and
- They are not involved in the business or undertaking that carried out the asbestos removal work.

¹ As defined in the WHS Regulation and includes a person who has acquired through training, qualification or experience the knowledge and skills to carry out the task. This may include an LAA.

If there is potential for a perceived conflict of interest, then the relevant person should not be considered independent. For example, if the person is a relative, friend or there is an ongoing working relationship then this would not be deemed independent.

7.2 Air Monitoring

An LAA or Competent Person shall conduct airborne asbestos monitoring in accordance with the requirements of the:

- WHS Regulation;
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*; and
- *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC:3003(2005)].

In the case of friable asbestos removal work a LAA must conduct the air monitoring. In the case of non-friable asbestos removal work a Competent Person (which may include a LAA) must conduct the air monitoring.

The person conducting the air monitoring must be independent per the requirements outlined in Section 7.1 of this report.

For asbestos removal the air monitoring must include:

- Background monitoring prior to asbestos removal work (to establish a baseline for comparison of future results);
- Control monitoring during asbestos removal work to assess the adequacy of the control measures in preventing environmental contamination and associated exposure; and
- Clearance monitoring at the completion of asbestos removal work to assess the adequacy of the removal works undertaken and suitability of the removal area for normal re-occupation.

The abovementioned air monitoring requirements for friable asbestos removal work also include monitoring prior to, during, and at completion of dismantling of any asbestos removal enclosure.

Airborne asbestos monitoring should be undertaken as a precaution during non-friable asbestos removal work as a precaution.

The independent person conducting the air monitoring is to determine the extent and duration of the monitoring required.

All air monitoring samples are to be analysed by a National Association of Testing Authorities (NATA) registered laboratory that holds NATA accreditation for the relevant test methods.

The action levels specified in the *SafeWork NSW Code of Practice: How to Safely Remove Asbestos* shall be applied to the airborne asbestos monitoring results obtained. These action levels are summarised in Table 3 below.

Table 3: Action Levels for Airborne Asbestos Monitoring

| Action Level | Control | Action |
|---------------------------|---|---|
| < 0.01 f/mL | No new control measures necessary | Continue with control measures. |
| ≥ 0.01 and ≤ 0.02 f/mL | Review | Review control measures. |
| | Investigate | Investigate the cause. |
| | Implement | Implement controls to eliminate or minimise exposure and prevent further release. |
| > 0.02 f/mL | Stop asbestos removal work | Stop asbestos removal work. |
| | Notify regulator (SafeWork NSW). | Notify the regulator (SafeWork NSW) by phone followed by written statement that work has ceased and the results of the air monitoring. |
| | Investigate the cause. | Conduct a thorough visual inspection of the asbestos removal enclosure and associated work site and equipment in consultation with all workers involved with the removal work. |
| | Implement controls to eliminate or minimise exposure and prevent further release. | Extend the isolated / barricaded area around the removal area as far as reasonably practicable until fibre levels are at or below 0.01 fibres/ml. Decontaminate relevant surrounding areas and address any inadequacies identified with respect to enclosure of the work. Smoke test the enclosure (if a "full", negative-air enclosure is used) until it is satisfactorily sealed. Update site practices and procedures based on findings of investigation (as per preceding point). |
| | Do not recommence removal until further monitoring is conducted. | Do not recommence until fibre levels are at or below 0.01 fibres/ml. |

7.3 Material Sampling and Analysis

Materials such as settled dust and debris (e.g., on building surfaces, plant and tools), and soil / fill, may be sampled and analysed for asbestos for the purposes of assessing the adequacy of controls used during the asbestos removal works or for asbestos clearance or general WHS purposes. The person conducting the sampling will determine these sampling requirements. All samples will be analysed by an independent NATA registered laboratory that holds NATA accreditation for the relevant test methods. If such accreditation does not exist, then analysis is to be conducted by an independent NATA registered laboratory that has suitable experience undertaking the required analysis.

8. Additional Asbestos Finds

In the case that additional asbestos is encountered unexpectedly the following procedure is to apply:

- Should signs of concern be observed, the Site Manager, as soon as practical, will:
 - Stop work in the affected area and ensure the area is barricaded to prevent unauthorised access;
 - Notify authorities needed to obtain emergency response for any health or environmental concerns;
 - Notify the Principals Representative (PR) of the occurrence;
 - Notify any of the authorities that the Contractor is legally/ contractually required to notify (e.g., EPA, Council);
 - Notify the Environmental Consultant and / or LAA or Competent Person;
- The PR is to notify any of the authorities which the Principal is legally / contractually required to notify (e.g., EPA, Council). Where appropriate the Principal's Representative will also implement appropriate community consultation in accordance with the Communications Plan;
- The suspected asbestos-containing material is to be assessed by a suitably qualified, experienced and, where necessary licensed, person:
 - In the case of friable asbestos the assessment is to be conducted by a LAA; and
 - In the case of non-friable asbestos the assessment is to be conducted by a Competent Person.
- The assessment is to comprise a visual inspection that is supplemented, where necessary, by sample collection and analysis, air monitoring, and other relevant assessment techniques;
- The nature and extent of the assessment, including any sampling / monitoring etc., is to be determined by the LAA or Competent Person conducting the assessment;
- The LAA or Competent Person is to confirm the controls required to help ensure that the interim risk of exposure and environmental contamination is eliminated, or if it cannot be eliminated, that it is minimised to the extent reasonably practicable until such time as removal / remediation can take place. This may include, for example:
 - Further isolation (e.g., temporary fencing, warning signage);
 - Wetting down and / or covering the material; and
 - Confirmatory air monitoring.
- The LAA or Competent Person is to confirm the requirements, if any, for removal / remediation of the asbestos and for clearance / validation. These requirements are to be formalised in a written report;
- Removal of the asbestos is to occur as soon as reasonably practicable and in accordance with the requirements determined by the LAA or Competent Person and any remediation / management plans applicable to the site;
- At the completion of removal / remediation a clearance inspection is to be conducted by the LAA or Competent Person. The clearance is to comprise a visual inspection that is supplemented, where necessary, by sample collection and analysis, air monitoring, and / or other relevant assessment techniques;

- At the completion of removal / remediation validation assessment may be necessary and, if so, must be conducted by a Competent Person. The validation assessment is to comprise a visual inspection that is supplemented, where necessary, by sample collection and analysis and / or other relevant assessment techniques;
- The nature and extent of the clearance inspection and validation assessment conducted, including any sampling / monitoring etc., is to be determined by the person conducting the assessment; and
- Upon receipt of a written clearance report stating that the hazardous substance / material has been adequately removed / remediated the area may be re-occupied.

9. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project in accordance with DP's proposal reference P0207996.00 of 23 August 2021. This report is provided for the exclusive use of JH for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and / or their agents.

The procedure provided in the report are indicative of the conditions on the Site only at the specific inspection, sampling and / or testing locations, and then only to the extent practicable and safely accessible at the time the work was carried out. Site conditions may change after DP's field inspection, sampling and testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in site conditions across the Site between and beyond the inspection, sampling and / or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

DP personnel are not experienced, licenced or accredited quantity surveyors. Any quantities quoted in this report are provided for general guidance only and should not be relied upon. The services of a licenced quantity surveyor should be engaged in order to determine reliable quantities.

The recommendations and conclusions contained in this report shall not abrogate a person of their responsibility to work in accordance with statutory requirements, codes of practice, standards, guidelines, safety data sheets, work instructions or industry best practice.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Notes About this Report

Drawing 1

About this Report

Douglas Partners



Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



Legend

- Approximate EIS Site Boundary
- ACM Impacted Area

0 200 400 600 800 m