

# UNEXPECTED FINDS PROTOCOL – REV D

Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Prepared for Mirvac Office and Industrial Pty Ltd

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## Aspect Industrial Estate, Mamre Road, Kemps Creek, NSW

Revision D

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This report has been prepared for Mirvac Office and Industrial Pty Ltd in accordance with the terms and conditions of appointment for in the Consultant Agreement for Lots 54-58 (DP 259135) Mamre Road, Kemps Creek – Phase 2 DSI, FIP, UFP, Dam Decommissioning Strategy, Groundwater Management Plan dated 24th September 2019. Arcadis Australia Pacific Pty Limited (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

## REVISIONS

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B	22/11/2019	Revised UFP based on Auditor Feedback	D.T.	C.L.
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# 1 INTRODUCTION

Arcadis Australia Pacific (Arcadis) was engaged by Mirvac Office and Industrial (Mircvac) to prepare an Unexpected Finds Protocol (UFP) to support the proposed Aspect Industrial Estate development located at Lots 54-58 DP259135 Mamre Road, Kemps Creek, NSW 2178. The location of the site is illustrated in Figure 1, **Appendix A**, and site features are depicted in Figure 2, **Appendix A**.

In order to obtain a construction certificate and commence construction work, all consent conditions of the Development Approval (DA) must be satisfied. The preparation and implementation of an Unexpected Finds Protocol (UFP) is expected to be required under the DA consent conditions to manage any unexpected finds, including contamination, that may be encountered during bulk earthworks.

## 1.1 Purpose

This protocol outlines the actions which must be implemented in the event that potentially contaminated materials, waste or asbestos is unexpectedly encountered during bulk earthworks and material importation at the site.

## 1.2 Background

The site comprises an approximate area of 56.3 ha and is located within the Penrith City Council Local Government Area (LGA). Known historical land uses at the site include rural residential, grazing, dairy farming, poultry farming and horticulture. The proposed redevelopment of the site will facilitate land uses consistent with commercial and industrial use, as prescribed in the National Environmental Protection Measure as amended in 2013 (NEPC, 2013) and will involve the following activities:

- The demolition and removal of existing rural structures.
- Heritage salvage works (if applicable).
- Clearing of existing vegetation and associated dam dewatering and decommissioning.
- Realignment of existing creek.
- On-site bulk earthworks including any required ground dewatering.
- The importation, placement and compaction of spoil material, consisting of;
  - Virgin Excavated Natural Material (VENM) within the meaning of the Protection of the Environment Operations (POEO) Act; and/or
  - Excavated Natural Material (ENM) within the meaning of the NSW Environmental Protection Agency (EPA) Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the POEO (Waste) Regulation 2014 – The Excavated Natural Material Order 2014; and/or
  - Materials covered by a specific NSW EPA Resource Recovery Order and Exemption which are suitable for their proposed use.
- Boundary retaining walls.
- Catchment level stormwater infrastructure, trunk service connections, utility infrastructure, roads and access infrastructure.
- Stormwater, service and utility infrastructure associated with the construction of industrial logistics and warehouse buildings within Stage 1 of the development.
- Boundary stormwater management, fencing and landscaping.

Information provided to Arcadis by Mirvac indicates that approximately 200,000 m<sup>3</sup> of VENM and/or ENM will be imported onto the site to support earthworks undertaken as part of the site redevelopment works.

### 1.2.1 Preliminary Site Investigation

In January 2019, JBS&G conducted a Preliminary Site Investigation (PSI) with limited soil sampling at the site.

The JBS&G review of the site history indicated that the site was historically used for light agricultural purposes (i.e. grazing, historical dairy farming, poultry farming and horticulture).

The findings of the desktop study (confirmed by detailed site inspections completed by JBS&G on 30 November 2018 and 16 January 2019) identified current and potential historical sources of on-site contamination. The sources of potential contamination were associated with the following storage, handling and uses on the site:

- Pesticides/herbicides used in former and current market gardens.
- Potential biological impacts from livestock/poultry farming.
- Potential use of hazardous building materials (asbestos, lead based paints, PCBs) in historic and current site structures resulting in localised impacts to soils in proximity to the location of site structures.
- Potential hydrocarbon and pesticide contamination from the storage of materials and consumables at various locations across the site area (former and current sheds).
- Fill materials of unknown origin.
- Potential asbestos containing materials (ACM) in irrigation lines (conduits).

JBS&G collected soil samples from a total of 38 locations across the site (29 soil boreholes, two test pits and seven stockpiles). The results from the samples collected by JBS&G have been summarised below:

- Elevated Total Recoverable Hydrocarbon (TRH) concentrations were identified in stained soils below a fuel drum (sample BH10 at 0.1 m). This impact was limited in lateral extent and did not appear to migrate vertically, based on visual observations of stained soil.
- A small number of heavy metal impacts to surface soils were also identified but were not considered to pose unacceptable ecological health risks under the proposed land use.
- Anthropogenic materials at some locations were present in quantities that may pose an aesthetic concern for sensitive land uses. JBS&G however noted that with the proposed land use (commercial/industrial), these materials may be retained beneath hardstand without any further management. The impacts identified were typical of historical land uses.
- Trace level friable asbestos was identified at one location (HA13) adjacent to historical structures, which were observed to contain possible ACM sheet board. JBS&G noted that there was the potential for ACM to be present within site structures and in soil in the vicinity of the structures.

JBS&G concluded that whilst the investigation identified localised surficial soil impacts at the site, the investigation did not identify widespread contamination which may preclude future redevelopment of the site. Identified soil impacts are considered representative of common contaminants and historical land use activities which can be readily dealt with during the DA stage for redevelopment and assessment for site suitability. JBS&G also recommended that a Hazardous Building Material Survey (HBMS) should be undertaken prior to any demolition of existing site structures.

## 1.2.2 Detailed Site Investigation

During October 2019, Arcadis undertook a Detailed Site Investigation (DSI) which involved intrusive works to assess soil, groundwater and surface water on site for contaminants of potential concern (CoPC) identified in the PSI (Arcadis, 2019a).

Review of previous site reports, observations from site walk overs on 8<sup>th</sup>, 9<sup>th</sup>, 16<sup>th</sup> and 23<sup>rd</sup> October 2019 and analytical results from soil, surface water, groundwater and potentially asbestos containing material (PACM) indicated that impact at the site is unlikely to be widespread. These observations were consistent with the JBS&G findings.

The results from the samples collected by Arcadis have been summarised below:

- Soil samples were taken from fifteen (15) test pits and six (6) monitoring wells. One sample reported an outlier exceedance of benzo(a)pyrene at MW02\_2.0. However, this exceedance was

considered an anomaly and does not represent the concentration of benzo(a)pyrene in natural soil materials, nor does it exceed the adopted assessment ecological screening criteria.

- Three (3) soil samples collected from areas adjacent to treated timber posts were assessed, with one sample (SO01) which exceed the NSW EPA General Solid Waste CT1 criteria for nickel (Ni).
- All surface waters reported analytes below the adopted criteria.
- Surface waters reported elevated pH and electrical conductivity when compared to the adopted criteria.
- A small number of heavy metal impacts to groundwater were observed and these were attributed to the elevated background concentrations of metals in on-site clay soils.
- Potential asbestos containing material (PACM) reported positive identification of asbestos at three out of four samples locations. No PACM was observed on roads or access tracks, with identified material adjacent current or former structures.

Based on the findings of the DSI, the site was deemed suitable from a contamination perspective for the proposed development as an industrial estate, pending the removal of identified asbestos containing material and the issuing of a clearance certificate to soil surfaces. Arcadis recommended that a HAZMAT survey and an asbestos register should be developed for the site prior to demolition works, asbestos removal works should be undertaken, and a clearance certificate issued post demolition and that a site unexpected finds protocol should be implemented prior to any intrusive works. Arcadis also recommended that on-site surface water should be measured after a significant rainfall event and compared to previously recorded the observations to observe water quality prior to dam de-watering. Accordingly, there is potential for unexpected finds, including contamination or waste, which may be encountered during demolition or earthworks at the site.

Arcadis recommended the following:

- Completion of a HAZMAT survey and preparation of an asbestos register for the site prior to demolition works. Asbestos removal works should be undertaken, and a clearance certificate issued following demolition.
- Completion of on-site surface water sampling following a significant rainfall event and comparison of data to previously recorded observations to assess for changes in water quality prior to dam de-watering.
- Preparation of an unexpected finds protocol prior to demolition or earthworks commencing at the site.

## 2 SCOPE

This protocol applies to the following activities:

- The demolition and removal of existing structures on-site.
- Clearing of existing vegetation.
- Dam dewatering and decommissioning.
- Importation of fill material to support earthworks undertaken as part of the site redevelopment works.
- Installation of site infrastructure including stormwater, service connections, utilities, roads and access infrastructure.
- Any other activities that have the potential to uncover or encounter contaminated materials, waste or asbestos.

### **3 TRAINING AND INDUCTION REQUIREMENTS**

All site-based Mirvac personnel and sub-contractors operating at the site should be inducted and review this protocol.

All site-based personal should understand the potential for unexpected finds, how to identify potentially contaminated materials, waste and asbestos and the procedures for management of unexpected finds.

A hardcopy of this UFP should be retained on-site at all times. Electronic copies of this UFP should be provided to site personnel and sub-contractors, as required.

The site unexpected finds register, and hazardous material register should be updated each time an observation of potentially hazardous or contaminating materials is made.

## 4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

When an unexpected potentially contaminated or hazardous material is found on site, appropriate personal protective equipment (PPE) is to be worn prior to any contamination investigation/management. This may include, but should not be limited to:

- Eye protection e.g. safety glasses or goggles.
- Face mask.
- Steel-toe boots.
- Safety gloves.
- High visibility long-sleeve shirt.
- Long trousers.
- Hard hat if overhead hazards are present.
- P2 respirator if fine materials and dust is present.

## 5 ASSESSMENT GUIDELINES FOR UNEXPECTED FINDS

The site is proposed to be redeveloped for land uses consistent with commercial and industrial uses, as prescribed in the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) as amended in 2013 (NEPM, 2013). Unexpected finds at the site should be assessed and managed in accordance with the criteria contained within following guidelines:

- Heads of EPA Australia and New Zealand (HEPA) (2018) PFAS National Environmental Management Plan.
- National Environmental Protection Council (ASC NEPC) NEPM (2013) HIL-D and HSL-D (Commercial/Industrial) criteria.
- NSW EPA (2014) Waste Classification Guidelines: Parts 1-3.
- NSW EPA Resource Recovery Framework, including current Orders and Exemptions.
- NSW EPA (1995) Sampling Design Guidelines.
- NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- NSW EPA (2019a) Standards for Managing Construction Waste in NSW.
- NSW EPA (2019b) Construction and Demolition Waste: A Management Toolkit.
- NSW OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites.
- Safe Work NSW (2011) How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) Managing Asbestos in or on Soil.
- WA Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.

## 6 PROCEDURE

### 6.1 Identification of Unexpected Finds

Previous environmental investigations completed at the site identified ACM on soil surfaces and trace level asbestos fibres in soils, building materials, stockpiled soil on-site and elevated hydrocarbon concentrations in stained soils (refer to JBS&G, 2019; Arcadis, 2019a). Similar impacts may be observed at other areas of the site during demolition or earthworks at the site.

Unexpected finds may be detected visually, by odour or through chemical testing. Unexpected finds at the site may include (but are not limited to):

- ACM and/or asbestos in soils. Identified by the presence of suspected ACM e.g. irrigation pipes or building materials, asbestos fines (AF) or free asbestos (FA).
- Dangerous Goods, chemical containers, drums or liquid waste including legacy firefighting foams or chemicals used for dust suppression.
- Construction, building and demolition waste.
- Stockpiled soil.
- Ash and slag.
- Historical imported fill material.
- Stained and/or odorous soils impacted by hydrocarbons and/or Volatile Organic Compounds (VOCs).
- Illegally dumped materials.

In situations where any of the above or additional unexpected finds are identified on-site, an exclusion zone should be immediately established, and the unexpected find should be documented and managed in accordance with the procedures outlined below and summarised in **Appendix B**.

### 6.2 Unexpected Finds Register

All unexpected finds identified on-site must be recorded in the Unexpected Finds Register provided in **Appendix B**. The Unexpected Finds Register records initial information inclusive of the following:

- Identification number.
- Date.
- GPS location.
- Name of person who identified the unexpected find.
- Material type.
- Approximate area of impacted area or unexpected find.
- Approximate depth of impact.
- Approximate volume.
- Sample identification (if samples were collected).
- Photograph log.
- Notification actions.
- Remedial actions.
- Validation action.
- Laboratory report reference numbers.
- Clearance.

- Comments.
- Status of unexpected find.

An electronic copy of this document should be made available to all site-based personnel and must be maintained during demolition and earthworks. The Unexpected Finds Register should be maintained and regularly backed-up to demonstrate identification, assessment, compliance and validation of all unexpected finds identified at the site.

## 6.3 Assessment of Unexpected Finds

Following documentation of the unexpected find, an assessment of the find should be completed. Depending on the nature, character and suspected source of the unexpected find, further testing may be required to assess the potential risk to human and ecological receptors.

All testing requirements should be identified, developed and implemented by a suitably qualified environmental consultant in accordance with NSW EPA endorsed guidelines. The NSW EPA Accredited Site Auditor should also be consulted on the investigation and remediation of unexpected finds.

Matrix specific procedures for the management of unexpected finds is provided in Sections 6.3.1 – 6.3.5 below. The general, overarching process for managing unexpected finds is summarised in **Appendix C**.

***If management strategy includes offsite disposal of contaminated material, the disposal location and results of testing must be submitted to the Planning Secretary, prior to its removal from site.***

### 6.3.1 Potentially Contaminated Soil and Stockpiled Materials

If potentially contaminated soil or stockpiled soil of unknown origin is encountered on-site, an exclusion zone should be immediately established, and the Site Manager and Environmental Consultant should be notified. Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be completed, and the NSW EPA Accredited Site Auditor should be notified.

For non-PACM, an Environmental Consultant should be engaged to sample the stockpile in accordance with the minimum sample frequencies outlined in Table 1. These minimum sampling frequencies have been adopted from the NEPM (2013) and VIC EPA (2009) guidance documents. Following sampling, waste classification in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums is required prior to off-site disposal.

Table 1 – Minimum Stockpile Sampling Frequency for non-PACM (VIC EPA, 2009) and Schedule B2 (NEPM, 2013).

Soil volume (m <sup>3</sup> )	No. of samples
25 or <25	3
50	3
75	3
100	4
125	5
150	6
175	7
200	8
>200	1:25

If in-situ contaminated soil is likely due to the presence of staining, odours or other visual signs of contamination, sampling and analysis should be conducted by an Environmental Consultant in accordance with the minimum sampling frequencies outlined in Table 2. If a smaller suspected point source of contamination is identified, an Environmental Consultant should be consulted to complete appropriate sampling to assess the vertical and lateral extent of impact. The Environmental Consultant will also provide advice regarding an appropriate testing regime for contaminants of potential concern (CoPC) in the suspected contaminated soil.

Table 2 – Sampling Frequency for Suspected Contaminated Soil (in-situ) (NSW EPA, 1995).

Size of site (ha)	No. of sampling points	Size of site (ha)	No. of sampling points
0.05	5	0.9	20
0.1	6	1.0	21
0.2	7	1.5	25
0.3	9	2.0	30
0.4	11	2.5	35
0.5	13	3.0	40
0.6	15	3.5	45
0.7	17	4.0	50
0.8	19	4.5	52

Size of site (ha)	No. of sampling points	Size of site (ha)	No. of sampling points
0.9	20	5.0	55

If test results indicate that the material presents concentrations of contaminants below the criteria outlined in the relevant guideline (Table 3), the material may be re-used on-site, subject to compliance with NSW regulatory requirements.

If contaminated soil is identified on-site, works should not recommence without inspection by a suitably qualified Environmental Consultant and the consent of the NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

### 6.3.2 Potential Asbestos Containing Materials

If PACM is unexpectedly identified on-site, the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified. Following notification, an exclusion zone should be immediately established, and the area should be secured by installing warning signs and a temporary barricade (e.g. marker tape) around the affected area to prevent anyone from accidentally disturbing the materials and generating airborne asbestos fibres. To minimise the potential release of fibres into the air, the soil should be kept damp (but not wet) and the area should be covered with plastic sheeting if it is safe to do so (WA Health, 2009). Air quality monitoring for asbestos fibre, dust and other contaminant emissions should be implemented during asbestos remediation works. Additional guidance on air quality monitoring is provided in WA Health (2009) and the site-specific Remediation Action Plan (RAP).

The material should be assessed in accordance with the Safe Work NSW (2014) Guidelines for Managing Asbestos in or on soil, including the SafeWork NSW (2014) *Managing Asbestos in or on Soil* management process flow chart that has been reproduced in **Appendix D**.

A suitably qualified environmental consultant or occupational hygienist should also be engaged to complete an assessment and development of a site-specific Asbestos Management Plan (AMP). An AMP should be prepared in accordance with the ASC NEPM (2013) requirements and best practice guidance provided by the WA Department of Health (WA Health, 2009). In addition, the following guidelines apply to the management of asbestos in NSW:

- Safe Work NSW (2011) How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) Managing Asbestos in or on Soil.

The following additional requirements also must be considered if asbestos is encountered on-site:

- Removal of non-friable asbestos materials greater than 10 m<sup>2</sup> must be undertaken by a Class B Licenced Asbestos Assessor.
- Friable materials identified on-site must be removed by a Class A Licenced Asbestos Contractor following clearance by a Licenced Asbestos Assessor (LAA).
- Air monitoring for asbestos is required during asbestos management works at the site. Air monitoring for friable asbestos should be supervised by an LAA.

If asbestos is identified on-site, works should not recommence without inspection by a suitably qualified person and liaison with both the Environmental Consultant and NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4** and guidance provided in the RAP.

### 6.3.3 Waste, Slag, Demolition Waste or Fill Material

If waste, slag or unknown fill material is encountered on-site, an exclusion zone should be immediately established, and the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified. Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be updated to include all relevant information.

The identified material should be subsequently inspected and assessed by a suitably qualified environmental consultant. If the material is being disposed off-site, the material should be sampled in accordance with the sample frequencies outlined in Table 1 or Table 2 and assessed in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums.

Alternatively, depending on the nature of the material, a Resource Recovery Order and Exemption may apply and may be used to facilitate off-site reuse of the material. Following assessment, the Environmental Consultant will be able to advise if a Resource Recovery Order and Exemption is applicable.

If waste, slag or unknown fill material is identified on-site, works should not recommence without inspection by a suitably qualified person and liaison with both the Environmental Consultant and NSW EPA Accredited Site Auditor.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

### 6.3.4 Hazardous Materials, Dangerous Goods or Drums

If suspected hazardous materials, dangerous goods, chemical storage containers or drums be identified on-site, the Site Manager, Environmental Consultant and the NSW EPA Accredited Site Auditor should be immediately notified, and the unexpected find should be recorded in the Unexpected Finds Register.

The nature of the chemical should be identified where practicable and an assessment of the material and surrounding area including underlying soils should be conducted by an appropriately qualified Environmental Consultant.

If aqueous film forming foams (AFFF) used for firefighting or dust suppression are identified on-site, the Environmental Consultant and NSW EPA Accredited Site Auditor should be notified immediately. The material should subsequently be tested for the presence of per- and polyfluoroalkyl substances (PFAS).

An assessment of the surrounding soils should also be conducted in accordance with guidance provided in NSW EPA endorsed guidelines, including the NEPC (2013), the NSW EPA (1995) Sampling Design Guidelines, OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites and NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997. Any impacted solid material intended for off-site disposal will require assessment in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums prior to off-site disposal at an NSW EPA licenced landfill facility. If PFAS is suspected on-site, the material should also be assessed in accordance with the HEPA (2018) PFAS National Environmental Management Plan.

Following recording in the Unexpected Finds Register, testing of the unexpected find should be arranged in consultation with the Environmental Consultant. The material should be subsequently disposed at an NSW EPA licenced treatment or disposal facility and transported in accordance with the NSW EPA waste tracking requirements.

Following management of the unexpected find, validation of clearance should be completed in accordance with **Section 6.4**.

### 6.3.5 Suspected Illegal Dumping

If suspected illegal dumping is encountered on-site, an exclusion zone should be established, and the Site Manager, Environmental Consultant and NSW EPA Accredited Site Auditor should be notified.

Following establishment of a clearly marked exclusion zone, the Unexpected Finds Register should be updated to include all relevant information.

The illegal dumping incident should also be reported via RIDonline (<https://ridonline.epa.nsw.gov.au/#/home>). When reporting online, the following information will be required:

- Address.
- GPS location.
- Type of waste dumped.
- Photographic evidence.

The NSW EPA should also be contacted to seek clarification on the process to follow prior to the dumped material being inspected and assessed by a suitably qualified environmental consultant. Illegally dumped material will likely be disposed off-site. As such, the material should be sampled in accordance with the sample frequencies outlined in Table 1 and assessed in accordance with the NSW EPA (2014) Waste Classification Guidelines and associated addendums.

## 6.4 Validation of Unexpected Finds

Unexpected finds identified at the site should be managed and documented in accordance with the procedures outlined in Section 6.3.1-6.3.5. Following documentation and management, the unexpected find should be further inspected, photographed and sampled (if necessary) to demonstrate compliance with this UFP and the guidelines listed in Table 3.

Where analytical sampling is required, the Sampling and Analytical Program (SAQP) presented in Table 3 should be followed:

Table 3 – Sampling and Analytical Program for Validation.

Unexpected Find	Validation Area	Sampling frequency	Analytes	Relevant regulatory guidelines
<b>Asbestos</b>	Residual soil underneath area where asbestos was found	Refer to Section 6.4.1	Analysed as per the NEPM (2013) and WA (2009) guidelines for ACM (10 L sample) and asbestos fines/fibrous asbestos (AF/FA)	WA Health (2009) and NEPM (2013), Schedules B1 and B2.
<b>Construction and demolition (C&amp;D) waste</b>	Applies directly to C&D waste	Sampling frequency as per NSW EPA (1995) Sampling Design Guidelines and NSW EPA (2014) Waste Classification Guidelines.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (2019 a,b).

Unexpected Find	Validation Area	Sampling frequency	Analytes	Relevant regulatory guidelines
<b>Stockpiled soil</b>	Stockpiled soil	Refer to Table 1.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (2014) Waste Classification Guidelines, with sampling frequencies for stockpiled soil determined in accordance with the sampling frequencies stipulated in Table 1.
<b>Residual soil beneath stockpiled soil</b>	Area beneath stockpiled soil, including an additional 5 m buffer	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.
<b>Contaminated soil (in-situ)</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.
<b>Stained material and/or soil suspected of being impacted by a chemical spill</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 2.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines.
<b>Bulk agricultural crop waste</b>	Applies directly to bulk agricultural crop waste	N/A	N/A	Material should be assessed and managed in accordance with NSW EPA (2014) Bulk Agricultural Crop Waste Exemption

Unexpected Find	Validation Area	Sampling frequency	Analytes	Relevant regulatory guidelines
<b>Fill material not imported under associated site-specific Imported Fill Protocol (IFP)</b>	Suspected area/footprint of contaminated soil or excavation area.	Refer to Table 1 or 2, whichever applies.	Determined in consultation with a suitably qualified Environmental Consultant following identification	NSW EPA (1995) Sampling Design Guidelines (in-situ/spread fill) and NSW EPA (2014) Waste Classification Guidelines (ex-situ/stockpiled fill)
<b>Suspected contaminated water or liquid waste</b>	Sediment contained in surface water body or drainage line, or storage area where liquid waste was stored.	A minimum of each of one (1) sample per IBC of liquid waste and/or suspected contaminated water.	Determined in consultation with a suitably qualified Environmental Consultant following identification.	NSW EPA (1995) Sampling Design Guidelines and NSW EPA (2014) Waste Classification Guidelines

### 6.4.1 Validation of Asbestos

Validation will be necessary for where asbestos remediation works related to excavations and large-scale soil screening has occurred using a mesh size is greater than 7 mm (WA Health, 2009). In situations where asbestos remediation has involved hand-picking, tilling and fine screening (< 7 mm mesh) strategies, validation of ACM should not be required, if the works have been conducted in accordance with the WA Health (2009) and NEPM (2013) Guidelines.

In situations where validation is required within an excavation area, validation may be achieved by collecting at least 1 sample per 5 m length from each wall of the excavated area, or per 1 m depth (WA Health, 2009). Additional discretionary samples should also be collected for QA/QC purposes and in situations where there is analytical uncertainty regarding whether fibres in a sample are asbestos. The floor of the excavation area should also be visually inspected. If suspected ACM is identified, this area should be sampled at twice the minimum density outlined in the WA DEC Contaminated Sites Management Series (CSMS).

In situations where screened material requires validation, samples should be collected from the stockpile at a minimum rate of 14 locations per 1000 m<sup>3</sup> (WA Health, 2009). If the soil is subject to a feeding or conveyer belt process, a minimum of 1 sample per 70 m<sup>3</sup> is required (WA Health, 2009).

The validation process for asbestos should also include the collection of documentation and evidence of the safe removal and disposal of the ACM at an appropriately licenced landfill, including photographs.

Validation is discussed in further detail in the site-specific RAP.

### 6.5 Imported Fill Material

Validation of imported material, including VENM, ENM or material subject to a Resource Recovery Order and Exemption should also be undertaken to confirm that contamination has not been introduced to the site during earthworks. Guidance on the import, management and validation of imported fill material is provided in the site-specific Imported Fill Protocol (IFP) (Arcadis, 2019b).

## 6.5.1 Reporting

Following clearance and confirmation that the unexpected find has been appropriately managed. A clearance or validation report should be prepared. This report should include, but not be limited to the following:

- Details of the unexpected find and supporting documentation contained within the Unexpected Finds Register.
- Information regarding the management processes that have been implemented to manage the unexpected find.
- An assessment of any validation testing results against the relevant assessment criteria.
- Information demonstrating that the management of the unexpected find was effective (including test results, statistical analyses and QA/QC).
- Where the requirements of this UFP are not achieved, an explanation for why those requirements were not achieved should be documented and additional site work proposed to achieve the original management objectives (if necessary).

## 7 LIMITATIONS

This Unexpected Finds Protocol has been prepared for use by Mirvac in accordance with the agreed scope of work. Arcadis performed its services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties expressed or implied are made.

Subject to the scope of work, Arcadis' assessment was limited strictly to the subject site and environmental conditions associated with the subject property and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials should not be interpreted as a guarantee that such materials do not exist on the subject property.

This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. It is a report based on the results and conclusions for the site that were made available to the consultant at the time of writing. These conditions may change with time and space.

All recommendations regarding the property are the professional opinions of the Arcadis personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Arcadis assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements or sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

Arcadis is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client.

## 8 REFERENCES

- Arcadis (2019a) *Detailed Site Investigation - Aspect Industrial Estate, Mamre Road, Kemps Creek*, 31 October 2019.
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- National Environment Protection Council (NEPC) (2013) *National Environment Protection Measure (NEPM) 1999, as amended 2013 – Assessment of Site Contamination Schedule B (1) and B (2)*.
- NSW Environment Protection Authority (1995a) *Sampling Design Guidelines*.
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- NSW Environment Protection Authority (2019a) *Standards for Managing Construction Waste in NSW*.
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- Protection of the Environment Operations (POEO) Act 1997 (Waste) Regulation (2014) *Excavated Natural Material Order 2014*;
- Safe Work NSW (2011a) *How to Safely Remove Asbestos Code of Practice*.
- Safe Work NSW (2011b) *How to Safely Remove Asbestos Code of Practice*.
- Safe Work NSW (2014) *Managing Asbestos in or on Soil*.
- Victorian Environment Protection Authority (2009) *Industrial Waste Resource Guidelines: Soil Sampling*. Accessed online: <https://ref.epa.vic.gov.au/~media/Publications/IWRG702.pdf> on 21 November 2019.
- WA Health (2009). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*

## **APPENDIX A FIGURES**

**Figure 1: Site Location**

**Figure 2: Site Layout**

# 10035157 - Aspect Industrial Estate - Detailed Site Investigation



## Legend

-  Site Boundary
-  Lot Boundaries

1:4,130 at A3



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Coordinate System: GDA 1994 MGA Zone 56  
Date issued: October 24, 2019

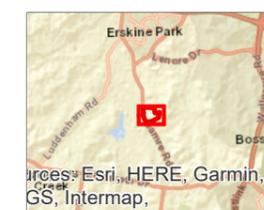
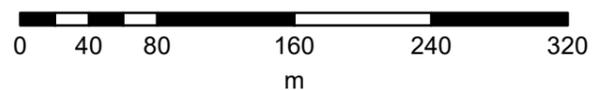


Figure 1 - Site Overview



10035157 - Aspect Industrial Estate - Detailed Site Investigation



- Legend**
- Dams
  - Site Boundary
  - Lot Boundaries

1:4,133 at A3

**mirvac**

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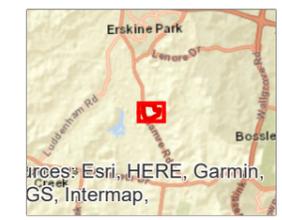
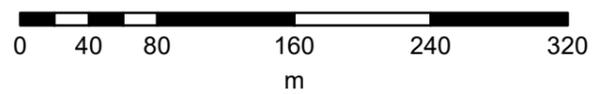


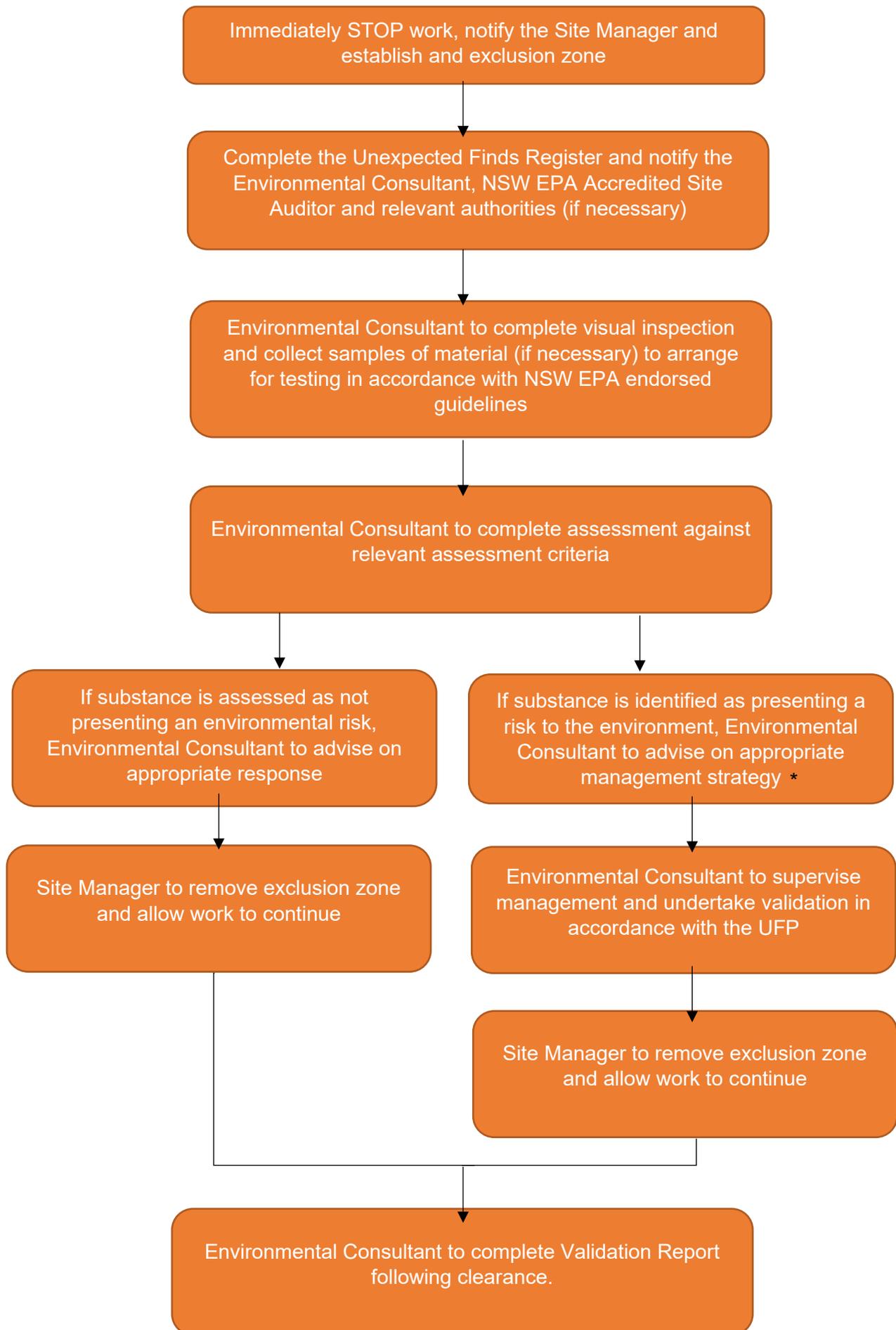
Figure 2 - Site Layout



## **APPENDIX B UNEXPECTED FINDS REGISTER**

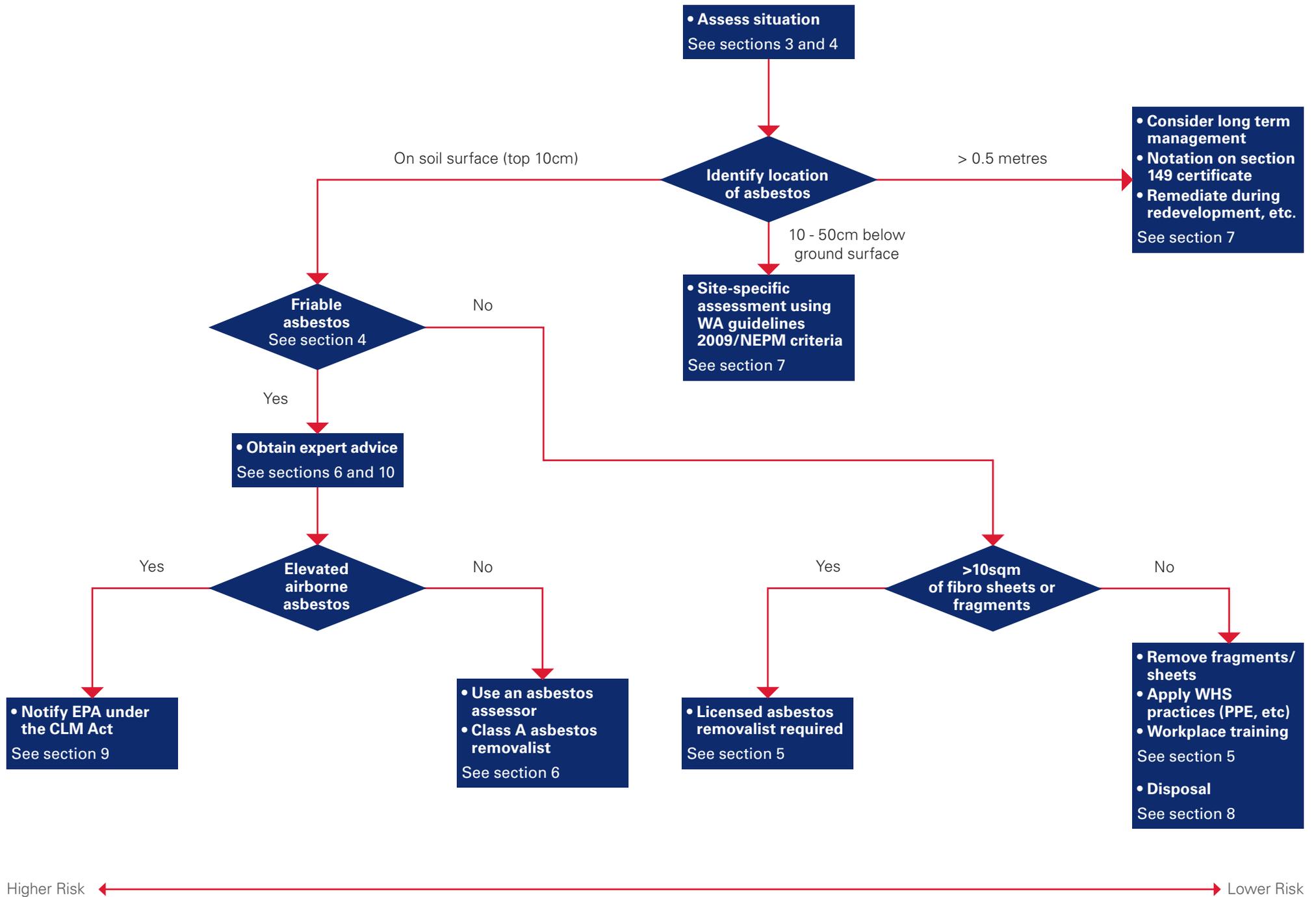


**APPENDIX C UNEXPECTED FINDS PROTOCOL  
PROCESS FLOWCHART**



\*If management strategy includes offsite disposal of contaminated material, the disposal location and results of testing must be submitted to the Planning Secretary, prior to its removal from site.

## **APPENDIX D MANAGING ASBESTOS IN OR ON SOIL FLOWCHART**



# ASBESTOS AND DEMOLITION CHECKLIST

OCTOBER 2016

Completed by

Date

Time

Company name

Nominated supervisor

Site address

Contact number

Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
Is the workplace secured from unauthorised access?	298				
Are barricades erected to delineate the asbestos removal area?	469				
Is there adequate signage for asbestos removal work?	469				
Are adequate facilities available for workers (toilets, meal area, drinking water, means to wash hands)?	41				
Is there an adequate first aid kit available?	42				
Is someone trained in first aid?	42				
Is there an emergency plan for the workplace?	43				
Is the designated asbestos supervisor present for friable work?	459 and 529				
Is the designated asbestos supervisor present for non friable work (ie able to arrive at the workplace within 20 minutes)?	459 and 529				
Does the contractor hold the correct licence for the work being undertaken?	485 and 487				

Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
Has licensed asbestos removal work been notified to SafeWork NSW?	142 and 466				
Are work surfaces and access ways clear of debris and trip hazards?	40				
Is there an asbestos removal control plan prepared?	464				
Is the Asbestos Removal Control Plan readily accessible?	465				
Are there arrangements (eg health and safety representative, health and safety committee or other agreed arrangements) to consult with workers on safety matters?	Sections 47 - 49 of the WHS Act				
Have safe work method statements been prepared for high risk construction work?	299				
Is there an asbestos register?	450 and 463				
Has the structure been inspected to determine whether asbestos is present?	451-453				
Do all persons working with asbestos have correct training?	460				
Do all workers have construction induction cards?	316				
Is plant inspected on a regular basis?	213				
Do workers have high risk work licences (if required)?	81				
Is correct personal protective equipment provided, fit tested, and used?	44				
Have all services been disconnected (ie electrical, gas, water, fire)?	163				
Is dust generated by demolition activity being controlled?	35				
If air monitoring is undertaken, is it done by a competent person?	475 and 482				
Are workers prevented from falling through open penetrations and unprotected edges?	78				
Are exclusion zones or overhead protection in place to stop building debris from falling on workers below?	54				
Is a compliant scaffold provided?	225				
Has the handover certificate been provided for the scaffold?	225				

Checklist	WHS Regulation	Yes	No	N/A	Notes/comments
For a Class A Friable Asbestos Removal License holder, is there a current certified safety management system in place?	493				
Are arrangements in place for a clearance inspection to be carried out, after asbestos is removed, by an independent licensed assessor or competent person?	473				
Is asbestos waste and contaminated PPE planned to be disposed of as soon as practicable at a site authorised to accept asbestos waste?	472				
Has notification of asbestos removal been given to the neighbours?	467				
Are there facilities available to decontaminate the following: asbestos removal area, plant used in the asbestos removal area, workers carrying out asbestos removal work, other persons who have access to the asbestos removal area?	471				
Does the licence holder have systems in place for decontamination and annual maintenance of Class H asbestos vacuum cleaners?	35				
Has health monitoring for workers been undertaken by a licensed medical practitioner?	435-444				

#### Notes