Asbestos Management Plan

170 Reservoir Road

Arndell Park, New South Wales

Paynter Dixon Constructions Pty Ltd

5 September 2019

TRACE Environmental
PO BOX 422, Camperdown NSW 1450

Asbestos Management Plan

170 Reservoir Road
Arndell Park, NSW

Prepared for:
Paynter Dixon Constructions Pty Ltd

Revision	Date	Author	Reviewer/Approver	Date Issued
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Disclaimer: THIS DOCUMENT IS SUBJECT TO LIMITATIONS NOTED

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1 Introduction

TRACE Environmental was engaged by Paynter Dixon Constructions Pty Ltd (Paynter Dixon) to prepare an Asbestos Management Plan (AMP) for the property located at 170 Reservoir Road, Arndell Park, NSW (the site). The site details are summarised in **Table 1-1** below. A locality plan is included as **Figure 1** and a site map is included as **Figure 2.**

Table 1-1: Summary of Site Details

ID Element	Description
Site Address	170 Reservoir Road, Arndell Park, NSW
Lot/DP	Part Lot 201 DP880404
Site Owner	Blacktown Workers Club
Local Council	Bankstown City Council
Site Coordinates	-33.795621o and 150.895315o (approximate centre of site)
Site Area	5.5 Ha

1.1 Background

The site covers an area of approximately 5.5 Ha and based on development plans provided by Paynter Dixon, the site is proposed for redevelopment for medium to high-density residential land use, and will also include an Aged Care Facility and single level basement car parking.

A Detailed Site Investigation (DSI) was conducted by TRACE Environmental in 2018[1] to assess the contamination status of soil and groundwater at the site in the context of the proposed redevelopment. Based on the results of the DSI conducted at the site, asbestos in the form of asbestos-containing materials (ACM), friable asbestos (FA) and/or asbestos fines (AF) were identified in fill material at concentrations exceeding the adopted human health assessment criteria at six locations in the upper (i.e. eastern) playing field, and at one location at the northern boundary of the lower (i.e. western) playing field (**Figure 3**).

TRACE Environmental (2018) considered that the site can be made suitable for the proposed redevelopment following implementation of a Remedial Action Plan (RAP) for management and/or remediation of asbestos impacted fill material at the site (noting a RAP has also been prepared for the site by TRACE Environmental[2]). Furthermore, prior to any disturbance of the subsurface being undertaken at the site as part of the proposed site redevelopment, TRACE Environmental (2018) also recommended that this AMP be prepared in accordance with SafeWork NSW Codes of Practice, which identifies the locations of the asbestos materials identified during the DSI and outlines how the asbestos risks will be controlled during work (including any air monitoring procedures that may be required).

1.2 Objectives

This AMP outlines measures to manage the potential risks posed to human health and the environment, in the event that asbestos impacted fill material is disturbed during site redevelopment works. Potential risks posed to human health and the environment include potential exposure to soil and air contaminated with asbestos during future development works. The objectives of this AMP include:

[1] TRACE Environmental (2018) *Detailed Site Investigation, 170 Reservoir Road, Arndell Park, NSW*, Dated 15 February 2018.

[2] TRACE Environmental (2019) *Remedial Action Plan, 170 Reservoir Road, Arndell Park, NSW Rev1*, Dated 5 September 2019.

- Outlining suitable strategies to manage the potential risks to human health and the environment health associated with asbestos impacting the site;
- Personal protective measures to prevent exposure to asbestos;
- Measures to contain asbestos contaminated materials on-site and to minimise dust production, runoff and/or erosion of contaminated materials;
- Document suitable loading and transport of contaminated materials from the site for off-site disposal at an appropriate licenced facility;
- Provide details of follow-up inspections and reporting required at the site following removal of fill materials (refer below to **Section 6**); and
- Provide details of the protocols required to conduct additional analysis or investigation in the event unexpected finds are encountered during works (refer to the UFP provided below in **Section 7**).

2 Legislative Requirements

The following Codes, Regulations and Standards shall be the minimum applicable to the work if necessary. Where a Code of Practice applies to the work, its recommendations shall be mandatory unless stated otherwise in this specification.

- Australian Standard 2601-2001: *The Demolition of Structures*;
- Contaminated Land Management Act 1997;
- Dangerous Goods (Road and Rail Transport) Act 2008;
- Environmentally Hazardous Chemicals Act 1985;
- Environmental Planning and Assessment Act 1979;
- Local Government Act 1993;
- National Environment Protection Council (New South Wales) Act 1995;
- Protection of the Environment Administration Act 1991;
- Protection of the Environment Operations Act 1997;
- Protection of the Environment Operations (Waste) Regulation 2014;
- SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* (2016);
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos* (2016);
- SafeWork NSW *Code of Practice: Demolition Work* (2016);
- Waste Avoidance and Resource Recovery Act 2001;
- NSW Work Health and Safety Act 2011; and
- NSW Work Health and Safety Regulation 2017.

3 Hazard Identification, Risk Assessment and Control

A risk assessment should be completed prior to commencing any works where asbestos impacted material will be disturbed. General requirements on the risk assessment, hazard identification and risk management are included below.

A review of hazardous substances must:

- Identify the potential locations, extent, accessibility, type and condition of hazardous substances impacting the site;
- Assess the risk to employees and other persons entering the site; and
- Include a review of previous environmental investigations (where available) with results of site sampling and laboratory analysis to determine contaminants of potential concern.

The Act, Regulation, Codes of Practice and Australian Standard noted above in **Section 2** stipulate employee duties in relation to hazard identification and risk assessment and include the following requirements:

Hazard Identification

- All hazardous substances in the workplace must be identified and listed;
- MSDS sheets must be obtained for all hazardous substances in the workplace;
- Appropriate labels must be affixed to containers holding hazardous substances, including those substances that have been decanted from their original container; and
- A register must be kept containing as a minimum a list of hazardous substances and their corresponding MSDS.

Risk Assessment

- A risk assessment must be performed for hazardous substances found to be impacting the workplace;
- The risk assessment must include a review of relevant MSDS labels and any other information available (e.g. site use, existing control measures);
- A decision must be formed on whether a risk to health is posed by the use of hazardous substances at the workplace;
- If a risk to health exists, an employer must implement control measures, and may need to undertake health surveillance and environmental monitoring;
- Persons who may be exposed to hazardous substances at work must be consulted during the risk assessment process, and be advised of the outcome(s); and
- Records outlining the risk assessment process, and any results from health surveillance, environmental monitoring, and training must be kept for the designated period.

Risk Management

- An employer must manage exposure to hazardous substances in the workplace to minimise risks to human health;

- Personal protective equipment (PPE) must be used for control where feasible. This is specified in the hierarchy of controls, being 1) elimination, 2) substitution, 3) isolation, 4) engineering controls, 5) administrative controls, 6) personal protective equipment;
- Where identified, health surveillance and monitoring must be utilised, including consultation with employees/contractors/on-site users involved in the applicable processes; and
- Records must be kept for allocated time periods relating to any monitoring and health surveillance performed.

3.1 In-ground Hazards and Contaminants

This AMP has been prepared for potential hazards associated with redevelopment works and is applicable when surface and sub-surface excavation works are undertaken at the site in location(s) where asbestos has been identified (**Figure 3**). This AMP is not applicable to any asbestos that may be present in site structures are identified above ground. This AMP includes an Unexpected Finds Protocol in the event that ACM or other unexpected items are discovered during the development works.

3.2 Occupational Hygiene Risks

A number of potential health and safety hazards are identified which may be encountered from exposure to hazardous substances during potential site excavation works. Potential risks may be associated with contaminated soils and waters, airborne exposures to asbestos, particulate matter containing asbestos fibres and general risks associated with dusts. Where works are not appropriately managed, the potential health effects associated with these exposures, if present, can include irritation as well as a range of chronic effects such as pulmonary health effects.

Asbestos fibres have been associated with various human respiratory diseases. The risk of contracting these diseases depends on the fibres becoming airborne and being inhaled chronically at elevated concentrations. It is important during asbestos removal works, if required, that the potential for generating airborne asbestos fibres is minimised. Moreover, levels of airborne asbestos fibres immediately outside the works area should be monitored and maintained within the control limits detailed below in **Section 5.2.6**.

4 Hazard Control Measures

The following sections outline general control measures to minimise the exposure to asbestos should disturbance of the hotspots of asbestos impacted fill material at the site be necessary during the development works.

4.1 Site Establishment

TRACE Environmental recommends establishing defined risk mitigation/control measure for any unexpected finds which are further detailed in **Section 7**. Additionally, the following control measures should be implemented at the site if disturbance of the hotspots of asbestos impacted fill material are required:

- Placement of hazardous material waste bins on site and supply/location of all necessary fencing and signage,
- Facilities for toilets, lunch rooms and responsibility for their suitable cleaning,
- Facilities for the provision of special needs (e.g. power requirements, potable water, electrical isolations); and
- Facilities for the provision of defined work site exclusion zones and building access arrangements for staff and visitors to the site.

4.2 Services Disconnection

The Contractor shall ensure that all services such as wastewater, water, electricity, stormwater, telecommunications, fuel and gas have been isolated and that the work area is rendered safe prior to commencement of asbestos impacted material disturbance if required during development works.

4.3 General Precaution or Control Strategies

It is recommended that the redevelopment contractor implement the following precautionary strategies in the event asbestos impacted material requires disturbance:

- Provide open communication and consultation with all stakeholders including employees and the general public;
- Carry out audits and inspections of the site during demolition and construction;
- Record all non-conformances and evidence of corrective actions taken;
- Ensure all personnel are inducted to the site and registered;
- Conduct daily tool box meetings; and
- Keep a register of all unexpected finds, environmental complaints, actions taken, date it was resolved. The register must include quantity of unexpected finds, spills/leaks and quantity of waste removed from the site (if any).

The contractor shall manage the potential risks of human exposure to the asbestos containing fill (if required) through the use of the following techniques:

- Appropriate contaminated materials handling, storage, transfer and disposal;

- Respiratory protection, protective clothing, gloves and other PPE;
- Work practices to reduce airborne particulates, including wet methods where appropriate;
- Good housekeeping practices, HEPA vacuuming, wet clean-up;
- Personal hygiene, segregated laundering of contaminated work clothes;
- Monitoring effectiveness of practices through occupational exposure air assessments
- Monitor noise and vibration;
- Water quality, stormwater and erosion management;
- Management of Construction Activities;
- All site segregation, demolition, earthworks, stabilisation, excavation, handling, stockpiling, transport etc. of materials containing known asbestos should be undertaken in a controlled and safe manner with due regard to potential hazards, training and safe work practices. The practices should comply with the OH&S policies specified by the relevant Authorities and the Code of Practice and Guidelines referenced above in **Section 2**;
- Totally enclosed containment will be provided for all hazardous waste prior to removal from the site and detailed in a "Safe Work Method Statement" (SWMS);
- Hazardous waste, including any contaminated soils and/or stormwater, must be disposed of to a NSW EPA licensed waste disposal facility as soon as possible. The Contractor will ensure that hazardous/contaminated wastes will only be transported and disposed of by disposal contractors holding appropriate EPA licences, and copies of appropriate disposal documentation must be provided to the Contractor; and
- The Contractor shall keep records of the appropriate disposal of any hazardous/contaminated wastes or materials.

4.4 Hazardous Substances Register

The Contractor will maintain a Hazardous Substances Register listing all hazardous/dangerous materials occurring on-site or brought onto the site, along with MSDS and emergency response procedures.

4.5 Incident Response

The following section summarises procedures for responding to and reporting of any incidents during potential asbestos disturbance. Asbestos incidents, spills or other non-conformances involving hazardous/dangerous materials will be dealt with immediately by the Contractor, including remediation actions as directed by an appropriate agency (if warranted). Incident management will involve work ceasing around the affected area or across the entire site if necessary, to protect human health/safety and the environment. Additional requirements include:

- The Contractor will notify the site owner/occupier immediately following an incident. Local council and/or the EPA should be informed in the event of a "pollution incident" which could cause potential risks to human health and/or the environment;
- In the event of an emergency, the site emergency procedures take precedent and environmental implications will be assessed and managed only when the emergency has been contained and it is safe to access the site;

- Incident Report Forms will be completed by the Contractor for any unplanned events/incidents involving hazardous/dangerous materials, in accordance with contractual obligations; and
- Operating procedures will be reviewed following any serious spills or hazardous materials incidents.

4.6 Dust Control

General dust control measures shall be as directed by Council in its Development Application (DA) Approvals. Should any asbestos contaminated material require disturbance during site development works, the Contractor shall implement additional measures as required below.

Dust control is needed to ensure sediment/contamination is not transported to off-site areas and pose a potential risk to human health or the environment. The redevelopment activities may generate airborne dust from a range of activities associated with the works and in the event of excessive dust generation, the following control measures may be required:

- Visually monitor dust levels during site work, and log observations utilising the NEPM Guidelines for PM10 Dust;
- Install wind/dust screening material along the work perimeter; and
- Apply wet dust suppression techniques (e.g. fine water mist spray) to dusty work areas.

When watering is used to suppress dust, care must be taken to ensure that it does not create run-off that will drain and potentially run into the stormwater system. Potential run-off from contaminated materials should be minimised and captured if generated.

4.7 Occupational Exposure Monitoring

For occupational monitoring, dust and contaminant levels should be below 50% of the short-term exposure level (STEL) and Time Weighed Average (8 hour) (TWA8) exposure standard stipulated in the NOHSC Exposure Standards for Atmospheric Contaminants in the Occupational Environment. Where concentrations greater than 50% of the respective criteria are detected the on-site work practices should be revised and appropriate notification practices employed.

4.8 Personal Protective Equipment

Appropriate PPE will be worn by all personnel with direct or indirect contact with asbestos impacted material , particularly when dusts are likely to be generated. The PPE should comprise:

- Respiratory Protective Equipment as specified in AS1715 – Particle Filter 210/310. Filter class P2, P3 personal filters may be appropriate for most materials likely to be encountered, these must be worn beneath fitted hood and non-disposable respiratory equipment must be cleaned internally and externally using wet wipes after every use. Details of appropriate PPE should be gleaned for a comprehensive review of MSDS;
- Protective disposable clothing (coveralls rated type 5, category 3 or equivalent) with the following characteristics:
    - The ability to resist penetration by the contaminants identified;
    - Designed so that it is close fitting at the cuffs with a fitted hood (worn over respirator straps), with no pockets or Velcro fastenings that may trap any dust;
    - Impervious gloves, and safety glasses should be worn; and

- Shoe covers (anti-slip) must be worn (laced boots are not recommended).

Other PPE requirements may be identified in the Contractors' Health and Safety Plan. Employees should be trained on the correct PPE requirements. The PPE should be easily accessible, clean, functional and maintained by appropriate staff.

Overalls should be removed and hands washed prior to eating, drinking or smoking. Changing and general face/hand washing facilities should be made available to on-site workers. Any clothing worn beneath disposable coveralls must be disposed of or appropriately bagged for laundering as asbestos contaminated clothing. Should occupational exposure monitoring reveal unacceptable concentrations of contaminants in the air, general washing and decontamination procedures may need to be revised.

Adequate washing and changing facilities should be provided with the objectives to:

- Minimise secondary exposure from contaminated clothing;
- Minimise ingestion of contaminants;
- Minimise inhalation of contaminants;
- Minimise dermal contact with contaminants; and
- Avoid the spread of contamination.

4.9 Occupational Health and Safety Plan

A site Occupational Health and Safety Plan (OHSP) may be prepared by the Contractor. This AMP is to be included an addendum to the site OHSP. All site work will be undertaken safely and in a controlled manner having regard to potential hazards, site worker training and safe work practices.

The OHSP will be applicable to all field personnel and subcontractors performing on-site works. All personnel involved will be required to read, understand and sign-off on the OHSP prior to conducting any on-site activities. Sub-contractors are responsible for implementing their own health and safety management plans and are responsible for ensuring that their employees are aware of, and comply with, the requirements of the OHSP. The formulation of the OHSP will be consistent with the requirements of the NSW OH&S Act.

An essential component of the OHSP will be an Emergency Response Plan for all aspects of site works. Any emergency should be reported immediately to the site office and/or the Site Safety Officer. Additional source of appropriate emergency assistance should be sought by telephoning 000. The Contractor will be responsible for ensuring that site personnel are aware of the emergency services available and appropriate contact details.

A Site Officer must be available on-site during site works. This AMP recommends the Contractor comply with the provision of first aid facilities for their workforce in accordance with:

- The relevant industrial award and the Occupational Health and Safety Code of Practice pertaining to First Aid in the Workplace;
- First aid facilities and trained first aiders to be on the site at all times; and
- Be aware of nearest medical centre, and nearest Hospital for emergencies.

4.10 Removal of Asbestos Waste

The following sections provide detailed handling, storage and transport procedures in the event that the hotspots of asbestos impacted fill material are disturbed during the proposed development works.

5 Handling of Asbestos Waste (including Soil)

The handling of asbestos waste (including asbestos impacted soil) will be conducted according to the procedures outlined below.

5.1 Asbestos Removal Works

All works removing hotspots of asbestos impacted fill material must be conducted according to the following procedures:

- All works removing asbestos impacted material must be carried out by a suitably licensed asbestos removalist duly licensed with SafeWork NSW, holding either a Friable (Class A) or a Non-Friable (Class B) Asbestos Removal Licence which ever applies;
- Five working days prior to the commencement of licensed asbestos removal, SafeWork NSW must be formally notified of the works, with a 'Notification of asbestos removal work' form. All adjoining properties and those opposite the development must be notified in writing of the dates and times when asbestos removal is to be conducted. The notification is to identify the licensed asbestos removal contractor and include a contact person for the site together with telephone number and email address;
- All works must be carried out in accordance with the NSW Work Health and Safety Regulation 2017 and the NSW Government, and the SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* (2016) document;
- The asbestos removalist must use signs and barricades to produce an exclusion zone (minimum of 10 metres from contaminated area) within the site and clearly indicate the area where the asbestos removal work is being performed. Signs must be placed in positions so that people are aware of where the asbestos removal work area is and should remain in place until removal is completed and clearance to reoccupy has been granted. Responsibilities for the security and safety of the asbestos removal site and removal work area should be specified in the asbestos removal control plan (where required). This includes inaccessible areas that are likely to contain asbestos;
- Warning signs must be placed so they inform all people nearby that asbestos removal work is taking place in the area. Signs should be placed at all main entry points to the asbestos removal work area where asbestos is present. These signs should be weatherproof, constructed of light-weight material and adequately secured so they remain in prominent locations. The signs should be in accordance with AS 1319-1994 Safety signs for the occupational environment for size, illumination, location and maintenance;
- Asbestos to be disposed of must only be transported to waste facilities licensed to accept asbestos;
- No asbestos products are to be reused on the site (i.e., packing pieces, spacers, formwork etc.); and
- No asbestos laden skips or bins are to be left in any public place.

It is understood that the preferred remedial strategy comprises encapsulation and/or capping of asbestos impacted fill material beneath basement hardstand within on-site building footprints and roads/hardstand areas (refer to the TRACE Environmental 2019 RAP for additional detail).

5.2 Methodology

Sub-Contractors working with asbestos or in asbestos affected areas of the site will be required to prepare and lodge a safe work method statement for the Principal Contractor's approval before commencing work. The chosen remedial contractor will be a Class A licensed asbestos removalist.

To the extent practical, all asbestos waste and debris within the identified hotspots on site should be progressively removed and stockpiled (further discussed in **Section 5.2.1** below). If asbestos impacted fill material is required to be removed from the site, then the material should be progressively removed and directly transported and disposed to an appropriately licensed landfill immediately following removal in such a manner to prevent any build-up of debris that could affect access within the site or become a workplace hazard.

All removal works will be in accordance with the codes, guidelines and Standards referenced above in **Section 2**.

5.2.1 Stockpiling

For the stockpiling of asbestos waste, the impacted material should be stockpiled on-site, prepared in accordance with referenced codes, including but not limited to:

- Stockpile asbestos impacted material away from adjacent land uses and other stockpiles,
- Stockpiles of asbestos impacted material should be placed ideally over a concrete or bitumen paved area, or be lined with minimum thickness of 200 micron heavy duty plastic sheet, formed and sealed to ensure leachate from asbestos contaminated material does not escape;
- Asbestos impacted material shall be lightly wetted regularly to reduce dust generation while loading and prior to plastic encapsulation;
- Asbestos impacted material shall be double wrapped in minimum thickness of 200 micron heavy duty plastic sheet or bagged in specific asbestos bags to code requirements;
- Silt traps should also be appropriately placed to avoid sediment loading of stormwater drains and pipes, sandbagged or otherwise block any drainage around the stockpile; and
- Barricade the perimeter of the stockpiled asbestos waste.

5.2.2 Decontamination

Adequate decontamination facilities are to be installed on-site in accordance with the guidelines specified in the Code of Practice for the Safe Removal of Asbestos [NOHSC2002 (2005)] and the NSW Work Health and Safety Regulation 2017 and amendments.

5.2.3 Respiratory Protection

All persons engaged in asbestos removal work or accessing a contaminated area shall wear an approved respirator conforming to the requirements of AS/NZS 1715 and 1716. These must be worn beneath fitted hoods and non-disposable respirator equipment must be cleaned with wet wipes before and after use.

5.2.4 Warning Notices

Suitable warning signs shall be placed around the works area. These signs shall comply with all relevant acts, regulations and codes of practice, including, but not limited to AS 1319-1994 - Safety signs for the occupational environment.

5.2.5 Loading and Transport of Asbestos-Contaminated Materials

Where asbestos impacted waste is disposed off-site, this material is to be removed and disposed of in accordance with all relevant acts, regulations, standards and codes of practice.

Removal of waste materials from the site shall only be carried out by a licensed contractor holding appropriate licenses, consents and approvals from NSW EPA, SafeWork NSW and/or other Authorities to transport and dispose of the asbestos waste materials according to the classification guidelines.

Asbestos waste must be transported in a covered leak-proof vehicle to prevent any spillage or dispersal of waste. Bonded asbestos not stored in a bag must be wetted before it is transported offsite. Asbestos fibres and dust waste are classified as friable and must be covered in a manner to prevent the emission of any dust.

Details of all contaminated materials removal from the site shall be documented with copies of weighbridge slips, trip tickets and consignment disposal confirmation (where appropriate). Such information should be provided to the Site Owner for reporting purposes. A site log shall be maintained by the licensed removal contractor for all waste stockpiles (numbered locations), to enable the tracking of disposed loads against on-site origin and location of the materials.

Measures shall be implemented to ensure no asbestos contaminated material is spilled onto public roadways or tracked off-site on vehicle wheels. Such measures could include the deployment of a vehicle washing/cleaning facility, which should be placed at a location before the site egress. The facility shall be capable of handling all vehicles and plant operating on site. Residue from the cleaning facility will be deemed contaminated unless shown by validation to be below Remediation Acceptance Criteria.

The proposed waste transport route should be approved by council. Each load leaving the site shall be recorded. Any vehicle used for the transport of contaminated waste must be inspected before leaving the site to ensure that all residual waste is removed from the outside of the vehicle.

5.2.6 Asbestos Fibre Air Monitoring

To date, respirable asbestos fibres have not been detected in the majority of samples retrieved from the site. However, FA and/or AF have been reported in samples collected from the TRACE Environmental (2018) investigation locations BH4, BH23, TP2 and TP5 (refer to **Figure 3** for sampling locations). AF and FA have the potential to generate respirable asbestos fibres that may pose a risk to site workers. Therefore, it is recommended that asbestos air monitoring be undertaken during the remediation of these asbestos impacted hotspots. Ongoing air monitoring may be required subject to the results of the air monitoring for areas of AF and FA.

Further air monitoring may be required depending on the results of classification and validation testing, and/or if unexpected asbestos finds are encountered (refer to **Section 7** below for additional information). If significant amounts of bonded asbestos are encountered, consideration would also need to be given to the nature of the encountered materials (i.e., if friable materials are present) and if extensive mechanical excavation is required that may disturb these materials and potentially generate fibres.

A qualified Class A Licensed Asbestos Assessor shall carry out appropriate air monitoring of the workplace and surrounding areas during asbestos remediation/removal works in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust [NOHSC:3003(1988)] including but not limited to:

- Air monitoring at the commencement of asbestos removal activity on the site;
- Air monitoring continuously in areas related to hazard removal work; and
- Air monitoring for clearance following removal of friable asbestos.

Air monitoring results are to remain below control levels in designated areas and monitored by the environmental consultant / hygienist. These control levels are occupational hygiene best practice and are not health-based standards (they are below the concentration set in NES for asbestos).

The control levels shall be as follows:

Control level (airborne asbestos fibres/ml)	Control/Action
< 0.01	Continue with control measures
≥ 0.01	Review control measures
≥ 0.02	Stop removal work and find the cause

6 Clearance Inspections

Following the removal of asbestos-contaminated materials, an inspection must be carried out by a licensed asbestos assessor, in order to establish areas which may require further remediation, and an asbestos clearance certificate is to be provided following such clearance. All asbestos waste material must be removed from the work area prior to a clearance inspection.

The licensed asbestos assessor may terminate the inspection if the work area is deemed to be contaminated and reconvene the inspection after follow-up remediation works to a satisfactory standard.

Additional clearance inspections may be required following identification of unexpected finds (per **Section 7** below and **Appendix A**).

7 Unexpected Finds

Workers will be vigilant for hazardous materials that may be uncovered during excavations. Unexpected finds include, but are not limited to, odour, visual contamination, deleterious material inclusions, asbestos containing material, USTs or any other suspect materials. Any unexpected finds and/ or suspect materials will be reported to the Contractor's on-site manager immediately.

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the substances or items listed above be identified (or any other unexpected potentially hazardous substance), the procedures summarised in the UFP provided in **Appendix A** are to be followed. An enlarged version of the unexpected finds protocol flowchart provided in **Appendix A**, suitable for use on-site, should be posted in the Site Office and referred to during the Site-Specific Induction.

If hazardous materials are uncovered / discovered during excavations the Contractor shall cease all work in that vicinity, barricade the area, investigate the nature of the risk of the materials, determine the appropriate response and document the actions in accordance with contractual obligations.

The contractor will inform the site owner/occupier immediately following an unexpected find. Local council and the EPA should be informed in the event of a serious unexpected find which could cause potential risks to human health and/or the environment.

8 References

- Australian Standard 2601-2001: *The Demolition of Structures*.
- Contaminated Land Management Act 1997.
- Dangerous Goods (Road and Rail Transport) Act 2008.
- Environmentally Hazardous Chemicals Act 1985.
- Environmental Planning and Assessment Act 1979.
- Local Government Act 1993.
- National Environment Protection Council (New South Wales) Act 1995.
- NSW EPA (2014), *Waste Classification Guidelines. Part 1: Classifying Waste*. NSW EPA, November 2014.
- Protection of the Environment Administration Act 1991.
- Protection of the Environment Operations Act 1997.
- Protection of the Environment Operations (Waste) Regulation 2014.
- SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* (2016).
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos* (2016).
- SafeWork NSW *Code of Practice: Demolition Work* (2016).
- TRACE Environmental (2018) *Detailed Site Investigation, 170 Reservoir Road, Arndell Park, NSW,* Dated 10 December 2018.
- TRACE Environmental (2019) *Remedial Action Plan, 170 Reservoir Road, Arndell Park, NSW,* Dated 5 September 2019.
- Waste Avoidance and Resource Recovery Act 2001.
- Work Health and Safety Act 2011.
- NSW Work Health and Safety Regulation 2017.

9 Limitations

This report has been prepared for Paynter Dixon Constructions Pty Ltd and for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

TRACE Environmental has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. The conclusions presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report were applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

This report and the information contained in it is the intellectual property of TRACE Environmental. Paynter Dixon Constructions Pty Ltd are granted an exclusive licence for the use of the report for the purpose described in the report.

Figures

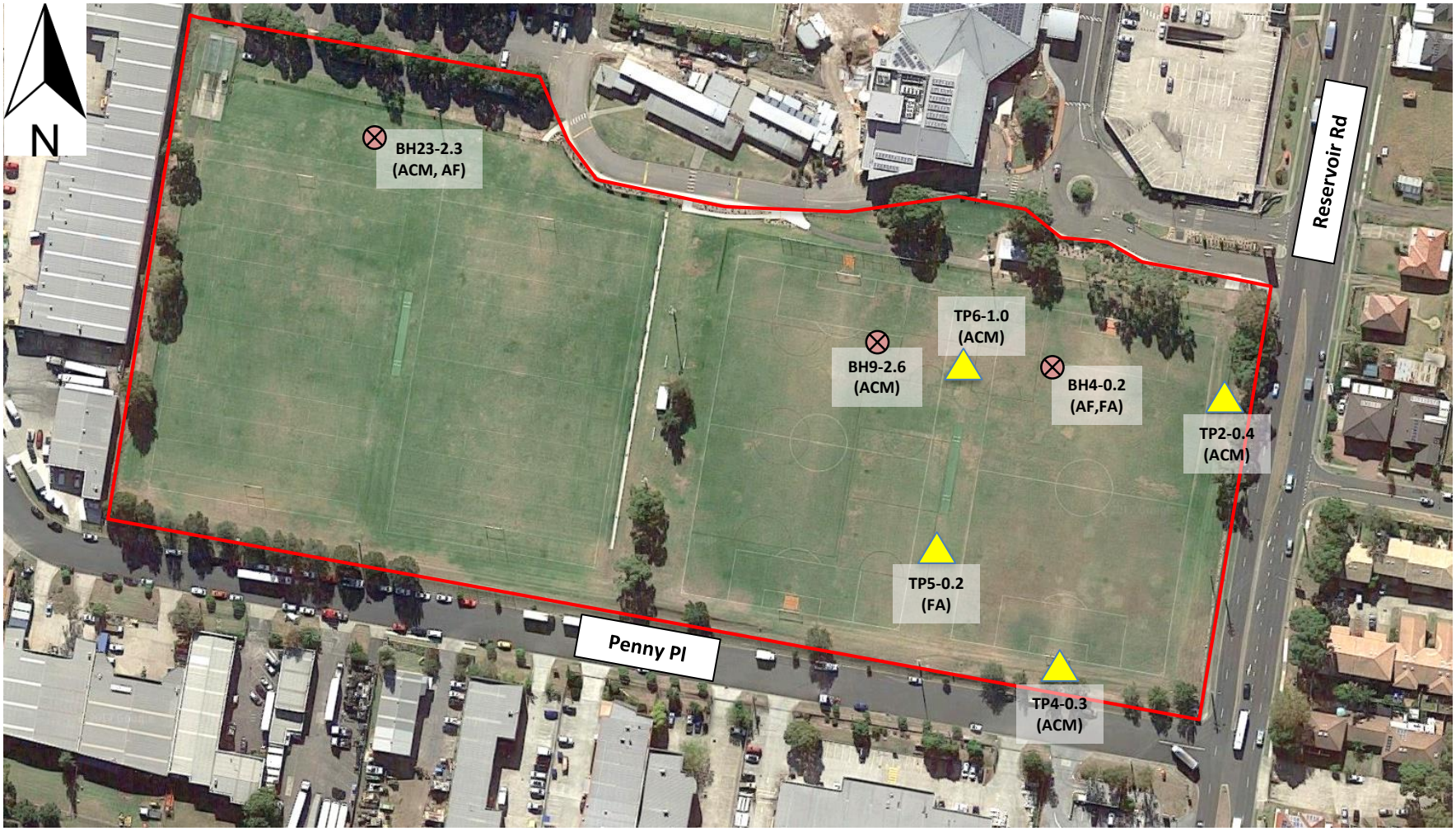
Source: Google Maps

TRACE ENVIRONMENTAL	Project: **28.01**	Title:	**Site Locality Plan**
	Figure: **1**	Address:	**170 Reservoir Road, Arndell Park, NSW**

Investigation Area Boundary

Source: Google

TRACE ENVIRONMENTAL	Project: **28.01**	Title:	**Site Plan**
	Figure: **2**	Address:	**170 Reservoir Road, Arndell Park, NSW**



Investigation Area Boundary

Borehole Location

Test Pit Location

AF = Asbestos Fines

FA = Friable Asbestos

ACM = Asbestos Containing Material

Source: Google

TRACE ENVIRONMENTAL	Project: **28.01**	Title:	**Identified Asbestos Impacted Fill Material**
	Figure: **3**	Address:	**170 Reservoir Road, Arndell Park, NSW**

Appendix A

Unexpected Finds Protocol

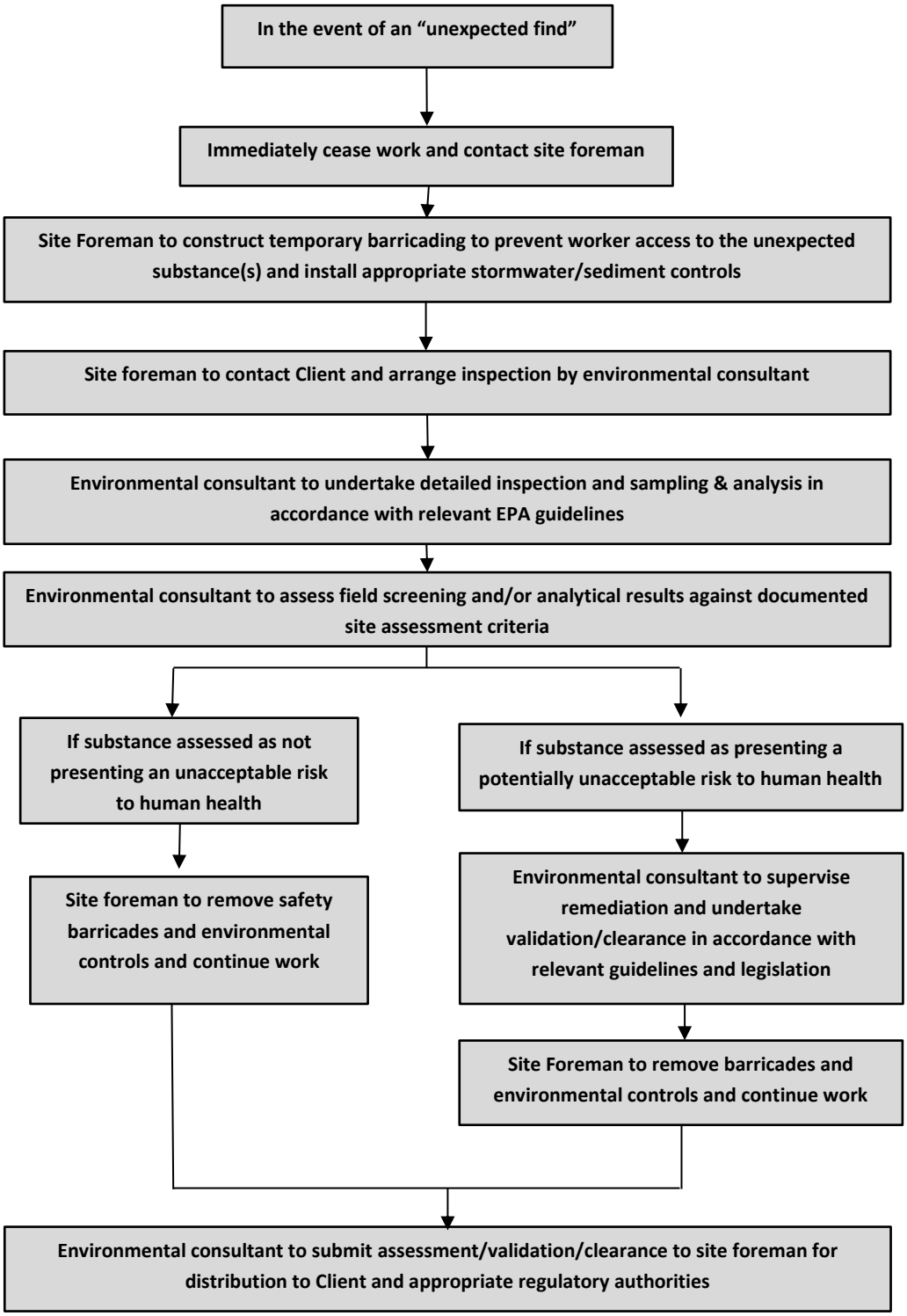
Appendix A - Unexpected Finds Protocol

The previous DSI assessment at the site has identified hotspots of asbestos impacted fill material at the site. However, there is a low potential that previous unidentified hazards may arise from unexpected sources and/or in unexpected locations during site development activities, however, unexpected hazards may arise. Hazards that may be present at the site are generally detectable through visual or olfactory means which include the following:

- >10 m^2 of ACM fragments encountered in one location (visible);
- Bottles / containers of chemicals (visible);
- Construction / demolition waste (visible);
- Ash and/or slag contaminated soils / fill materials (visible);
- Petroleum contaminated soils (staining / discolouration visible) beyond the identified impact, or at levels that prevent off-site disposal without treatment; and
- Volatile organic compound (VOC) contaminated soils (odorous).

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the above-mentioned substances or items listed above be identified (or any other unexpected potentially hazardous substance), the procedures summarised in the flowchart provided in **Flowchart A1** (below) and detailed in the following sections are to be followed. An enlarged version of the unexpected finds protocol flowchart, suitable for use on-site, should be posted in the Site Office and referred to during the Site-Specific Induction.

Flowchart A1 - Unexpected Finds Protocol



Unexpected Asbestos Finds Protocol

If asbestos is detected in unexpected areas prior to, or during, site development works the following UFP will apply:

a. Upon discovery of asbestos/suspected ACM, the site manager is to be notified and the affected area closed off using barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the Australian Standard 1319-1994 – Safety Signs for the Occupational Environment;

b. A person who may be considered competent[3] in the identification of asbestos (i.e. occupational hygienists who have experience with asbestos, licensed asbestos assessors) is to be notified to inspect the area and confirm the presence of asbestos and to determine the extent of remediation works to be undertaken. A report detailing this information would be compiled by the competent person and provided to the Principal (or their representative) and the site manager;

c. The location of the identified asbestos material would be professionally surveyed;

d. If the impacted soil is to be disposed off-site, it should be classified in accordance with the NSW EPA *Waste Classification Guidelines* (2014) and disposed of, as a minimum, as asbestos contaminated waste to a suitably licensed landfill. If material is stockpiled on site it should be lightly wetted and covered with plastic sheet whilst awaiting disposal;

e. All work associated with bonded asbestos in soil would be undertaken by a Class B Asbestos Removal Contractor. SafeWork NSW must be notified 5 working days in advance of any licensed asbestos removal works;

f. Monitoring for airborne asbestos fibres is to be carried out during the soil excavation in asbestos contaminated materials;

g. Documentary evidence (weighbridge dockets) of correct disposal is to be provided to the Principal (or their representative);

h. At the completion of the excavation, a clearance inspection is to be carried out and written certification is to be provided by the competent person that the area is safe to be accessed and worked;

i. Validation samples should be collected from any excavations to confirm the complete removal of the asbestos containing materials. If asbestos pipes/conduits are uncovered, then sampling density would typically comprise one sample per 5-10 linear meter (depending on the length of the pipe). If asbestos debris are found, then the sampling density would typically comprise 1 sample from each wall per 5m length of strata of interest (or per 1 m depth) or per 5 m^2 grid on excavation base(s), with additional discretionary samples if necessary;

k. Details of any remediation and validation works are to be recorded with appropriate field documentation and formalised in an environmental report; and

l. Following clearance by a competent person, the area may be reopened for further excavation or construction work.

[3] 'Competent Person' as defined in the SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* (2016).

Unexpected Buried Structures/Debris

In the unlikely event that buried structures such as underground storage tanks (USTs), building and or demolitions materials or any items noted above are encountered during site works, the structure(s) and any associated items (e.g., pipework) should be managed /removed as follows:

a. Upon discovery of the buried items, the site foreman is to be notified and the area barricaded;

b. Visual identification of the buried structure, item, UST and/or associated pipe-work;

c. Remove and dispose of the structure and associated pipe-work by a qualified contractor. In the case of an UST, the tank must be removed in accordance with the NSW Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014 and Australian standards;

d. Excavate and stockpile impacted materials (based on field observations) for classification;

e. Validation of the remedial excavation by a qualified environmental consultant for contaminants of potential concern (COPCs) at the following sampling density:

- Base of excavations - 1 sample per 25 m^2 of excavation base;
- Excavation side walls - 1 sample per 10 linear metre (minimum of 1 sample per side) and 1 sample per 2 to 3 m depth interval;
- Fuel feed lines/pipe-work - 1 sample per 10 linear metre and 2 to 3 depth intervals; and
- QA/QC sampling and analysis in accordance with the relevant guidelines and regulations.

f. If required, “chase out’ all of materials in the remediation excavation identified to be impacted by COPCs, and further validation sampling and analysis as required to assess appropriate removal of impacted materials;

g. Waste classification and off-site disposal of impacted materials in accordance with NSW EPA *Waste Classification Guidelines* (2014); and

h. Inclusion of validation, waste classification and disposal documents (including landfill dockets and, in the case of USTs, tank and pipe work destruction certificates) in a validation report.

Unexpected Volatile COPCs

Based on the findings of the previous assessments, the potential for the site being impacted by volatile contaminants is extremely low. If impacts due to volatile contaminants are detected at the site, the nature and extent of the impacts of the volatile contaminants should be established as a first step before an appropriate remedial strategy is to be established. This would comprise an initial field screening of the material for visual and olfactory indications of volatile COPCs being present. If the field screening indicates the potential for volatile COPCs to be present an assessment should be undertaken by a suitably qualified environmental consultant in accordance Schedule B2 of NEPM 2013 and other applicable guidelines and regulations. If deemed necessary and feasible the volatile impacted material should be removed for off-site disposal. If remediation of VOC impacted soil is necessary, a Remedial Action Plan (RAP) prepared by a suitably qualified environmental consultant, may be necessary to detail the scope of the remediation and validation works.