Parramatta City Council

RAP Addendum

‘Parramatta Civic Link – Block 3’, Horwood Place, Parramatta, NSW, 2150

10 October 2025

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10 October 2025

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Contents

Tables and Images (in text)

1 Introduction

Arcadis Australia Pacific Pty Ltd (Arcadis) was engaged by Parramatta City Council (PCC or the Client) to prepare an Addendum to the Remediation Action Plan (RAP Addendum) for the project identified as 'Parramatta Civic Link – Block 3'; located at Horwood Place, Parramatta, NSW, 2150 (the Site). The Site location is shown in *Figure 1*.

This RAP Addendum provides alternate contingency action for remedial and validation strategy outlined in the Remediation Action Plan developed for implementation during proposed construction works, to address contamination risks which may otherwise remain onsite in the event that residual in-situ bonded asbestos containing material (ACM) is identified. The contingency actions outlined in this RAP Addendum focus on options for the onsite capping and containing methodology for onsite identified asbestos containing materials.

This RAP Addendum should be read in conjunction with the Arcadis Remediation Action Plan - *'Parramatta Civic Link – Block 3', Horwood Place, Parramatta, NSW, 2150 (RAP)* (Arcadis, 2025c) and Arcadis (2025b) *Limited Construction Environmental Management Plan, 'Parramatta Civic Link – Block 3', Horwood Place, Parramatta, NSW, 2150 (L-CEMP)* which provides procedures and controls to be implemented during construction to manage human health and environmental risks from potential asbestos.

1.1 Objectives and Purpose

The purpose of preparing this RAP Addendum is to provide the contingent remediation options in the form of onsite capping and containing of asbestos material as an alternative to processes outlined in Section 6.4.6 and 6.4.7 of the RAP.

The objectives of the RAP Addendum are as follows:

- Identify the remediation objectives, criteria and extent.
- Provide alternate remediation strategy for identified asbestos material onsite then that outlined in the RAP.
- Detail the remediation and validation strategy to be implemented to address potential unacceptable exposure risks from residual bonded ACM (if identified) at the Site, based on the future public open space land use scenario.

It is noted that this RAP Addendum is not designed to replace the RAP, however, provide alternate methods for specific sections relating to remediation methodology only. All other management requirements outlined in the RAP are to be adhered to.

1.2 Scope of Work

Arcadis undertook the following scope of work to meet the objectives:

- Reviewed previous environmental investigations to identify potential risks to human health and/or the environment from the identified contamination.
- Set remediation objectives to allow for the proposed use of the Site, with no unacceptable risks to human health and/or the environment.
- Defined the remediation extent required to achieve the remediation objectives.
- Documented the process required to remediate and validate the Site, based on the future public open space land use scenario.

This Addendum was prepared in consideration of the following guidelines:

- SafeWork NSW (2022). Code of Practice: How to Manage and Control Asbestos in the Workplace.
- SafeWork NSW (2022). *Code of Practice: How to Safely Remove Asbestos*.
- NSW EPA (2017). *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017).
- NSW EPA (2020). *Consultants reporting on contaminated land* (NSW EPA, 2020).
- NSW EPA (2022). *Contaminated Land Guidelines: Sampling Design Part 1 - Application Guidelines* (2022).
- NSW EPA 2014. *Waste Classification Guidelines– Part 1-4*
- NSW EPA (2016). *Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste*
- National Environment Protection Council (NEPC). 2013. *National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999*, as amended May 2023 (the NEPM; NEPC, 2013)
- Heads of EPA Australia and New Zealand (HEPA) 2020. *PFAS National Environmental Management Plan: Version 2.0* (The NEMP 2.0; HEPA, 2020)

2 Pre-Remediation Conceptual Site Model Summary

2.1 Adopted Assessment Criteria

Based on the information provided, the Site ultimately will be developed into open space area, accessible to the public, with a combination of hardstand and landscaped garden beds. Therefore, the proposed land use for the Site is consistent with Public Open Space ('Open Space or 'Recreational C') land use scenario, defined in the NEPM (NEPC, 2013).

2.2 Source

Based on the previous contamination assessments conducted at the Site, the main sources of contamination are detailed in Table 3-1.

Table 2-1 Sources of Contamination

Source ID	Matrix	Description
Potential unexpected finds of bonded ACM impacted fill material	Fill	Possible bonded asbestos fragments in fill soils, deemed unfeasible or impracticable for disposal to a licensed landfill
Bonded ACM conduit	Conduit service	Bonded asbestos conduit, pits and infrastructure associated with existing Endeavor Energy assets

2.3 Receptors

The potential receptors of the sources of contamination identified at the Site include future site users (Recreational / Public Open Space) and construction workers.

2.4 Exposure Pathways

The identified (or potential) pathways for contamination to move from the contamination source to the identified receptors at the Site are considered to include inhalation of asbestos free fibres during disturbance works.

3 Remediation Method

The below presented remediation methodology is as an alternative to the onsite treatment and offsite disposal options presented in the RAP. All other aspects of the RAP are applicable to site remediation works and should be followed as outlined in the RAP. These include, but are not limited to:

- Approvals and Notifications
- Implementation of Site Construction Management Plan
- Site establishment
- Contingency plans,
- Unexpected finds,
- Stockpile management,
- Material tracking
- Importation of material
- Waste disposal and
- Material tracking.

If asbestos is identified in fill, all works will be carried out in general accordance with SafeWork NSW (2020) *Code of Practice: How to Manage and Control Asbestos in the Workplace* 2020, SafeWork NSW (2022) *Code of Practice: How to Safely Remove Asbestos* and the NEPM (NEPC, 2013). Any asbestos removal works will be undertaken by a suitably licensed asbestos remediation contractor, which includes:

- Class A for all friable asbestos (AF/FA)
- Class B for all non-friable asbestos (bonded ACM).

The remedial works for the project will generally include the following:

Insitu Asbestos retention and capping (Section 3.3)

- Excavation of asbestos impacted fill to the extent required for development and validation in accordance with the RAP.
- Survey the lateral extent and vertical RL of residual asbestos contaminated fill,
- Undertake asbestos air monitoring while asbestos impacted soils are exposed.
- Installation of a marker layer above the asbestos impacted material,
- Capping above the asbestos impacted fill material with 'clean' fill.
- Survey of the top of final surface RL,
- Validation of the capping requirements.
- All soil placement and compaction works should be undertaken as per the requirements with any geotechnical specifications.

Abandonment of asbestos conduit in situ (Section 3.4)

- Positive identification of the location of onsite conduit and access pits.
- Removal of near surface pits and access points.
- Removal of electrical wiring/infrastructure within conduits (if required).

- Sealing of conduits ends.
- Survey of conduit location and RL.
- Validation of the capping requirements.

3.1 Remediation Goal

The goal of the proposed remedial activities is to manage the identified contamination exposure risks to a level that does not present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario. Following remediation and validation works the site will be managed under a long-term environmental management plan (EMP).

3.2 Remedial Method

The associated remediation methods in this RAP Addendum will focus on contingency plan for capping and managing asbestos material onsite, in the event assessment of the volume and extent of asbestos or portions of asbestos onsite are determined to be unsuitable for onsite treatment or offsite disposal. The preferred remedial option for each area of concern, associated rationale and applicable remedial method is presented below.

Table 3-1 Remedial Option

Areas of Concern	Preferred Remedial Option	Rationale	Remedial Method
Unexpected Finds of Asbestos-Impacted fill	Retained in situ and management of impacted soils under a suitable capping mechanism.	The SPR Linkage is considered broken if a suitable capping layer is installed to prevent access.	Identified impacted fill outside proposed disturbance areas will be retained in situ, covered with high-visibility geofabric and a minimum 0.5 m layer of clean fill material and finished with grass, mulch or concrete (pedestrian pathways) installed over the top.
Asbestos conduit	Containment and management asbestos conduit under a suitable capping mechanism.	The SPR Linkage is considered broken if sufficient clean material is retained over and around existing infrastructure prevent disturbance and future access.	Removal of near surface pits and inspection access ports, abandonment of asbestos conduit in situ, with a minimum 0.5m of overlying cover.

Any asbestos retained onsite that exceeds the land use criteria for open space as defined in NEPM 2013, will require management under a Long Term Environmental Management Plan (LTEMP) and notification on title.

3.3 Remedial Works – In situ asbestos retention and capping

3.3.1 Asbestos Handling

All Site works being undertaken within known asbestos contaminated areas, should be considered 'exclusion zone(s)' with restricted access, to authorised personnel, with appropriate personal protection equipment. Exclusion zones will be maintained during the duration of the works and only removed post decontamination and issuing of the asbestos clearance certificate.

For details refer to *Section 3.7 - Limiting access, displaying signs and installing barricades* and Section 4.2 - *Indicating the asbestos removal areas* of *Code of Practice: How to Safely Remove Asbestos* (SafeWork NSW 2022).

All asbestos clearance certification is to be issued by an independent competent person or Licenced Asbestos Assessor (LAA) as appropriate. Refer to Section 3.5 – Asbestos Clearance Certificate.

3.3.1.1 Excavation Methodology

Excavation of asbestos impacted soils will be carried out under the supervision of the asbestos remediation contractor using equipment suitable of the scale of works being undertaken. Consideration of the requirements provided in *Section 7.1* SafeWork NSW (2022) will be applied.

All plant involved in the handling of asbestos impacted soils will remain withing the exclusion zones until a clearance certificate is issues for that plant.

During earthworks, dust generation and distribution will be minimised through the processes including, but not limited to:

- Dampening the surface of the Site and working area with a water cart or similar control.
- Deploying covers over stockpiled or exposed soils,
- Placement of soils directly into haulage plant in a manner to minimise dust, and
- Ceasing work in strong winds.

When loading vehicles/plant for haulage of the impacted soils, they will be loaded in a manner that there is no spillage or loss of containment of the asbestos material during transport. Spillage of material on the side or edges of the truck body will be removed prior to commencement of material movement.

At the completion of the excavation works, the final scrape of the works area will be done in a manner that prevents cross contamination of clean soils. This could involve the "backing out" of the works area by scraping soils on exiting the area ready for validation.

Once a final surface level is achieved, a marker layer will be placed in a manner that prevents the cross contamination of non-contaminated plant and equipment (as per Section 3.3.4). The purpose of this layer is to allow the asbestos exclusion zone to be removed following a suitable clearance inspection.

3.3.1.2 Haulage of Soils

Soil must not be tracked off the Site as a result of vehicle, plant and equipment movements. To limit the potential for tracking of soil off-site via vehicle, plant or equipment movement, the following controls should be implemented:

- Vehicles, plant and equipment on the Site will be kept to a practical minimum.

- Dedicated plant will be located within the proposed excavation/placement and haulage areas.
- No soils being transported are permitted to spill or leak from the transporting vehicle.
- Dedicated haul road/area with exclusion zones will be dedicated for the haulage and onsite relocation of asbestos materials.
- Plant will be subject to full decontamination and asbestos clearance prior leaving the leaving the exclusion zone

3.3.1.3 Decontamination

Prior to any plant or personnel leaving the exclusion zone, decontamination must be undertaken. Details for decontamination procedures can be found in *Section 4.6 – Decontamination* of SafeWork NSW (2022).

Procedures to be applied should include but not be limited to the details outlined in the tables below.

Table 3-2: Personal Decontamination

Personal Decontamination Procedures	
Issue	Appropriate hygiene and decontamination assists with minimising worker exposure and the transportation of potentially contaminated materials from work areas to more sensitive environments.
Criteria	No contaminated clothing or PPE to leave the work areas.
Controls	1) Eating, drinking, chewing gum and smoking will be prohibited at all times whilst working in potentially hazardous areas. 2) All individuals working at the Site will pass through a decontamination unit or decontamination prior to exiting work areas. All outer work material will be physically removed from personnel prior to exiting work areas. 3) Remain in full PPE in work areas at all times. 4) Plant operators are to remain inside vehicle during operation with windows and doors closed and air-conditioning on recycle only or switched off.

Table 3-3: Vehicle Decontamination

Vehicle/Plant Decontamination Procedures	
Issue	Appropriate vehicle and equipment decontamination assists with minimising worker exposure and the transportation of potentially contaminated materials from work areas to more sensitive environments
Criteria	No contaminated vehicle or equipment to leave the work areas
Controls	1) Trucks and equipment will remain within the works area until the completion of works. Vehicles will not traffic between work areas and other areas of the Site, including lunch areas, car parks, etc. 2) a designated cleaning areas will be used to wash down all vehicles and equipment potentially coming into contact with contaminated soil leaving all remediation or works areas. 3) Vehicles will be cleaned by the asbestos removalist in the designated wash down area to remove all viable soil and debris. 4) Plant / equipment can only be removed from the works area following inspection and the issuing of a clearance certificate.

3.3.1.4 Asbestos Clearance Certificate

Following the removal works, and prior to removal of any plant/vehicles or equipment from the asbestos works area, an Asbestos Clearance Certificate will be issued. Asbestos clearance should be undertaken in accordance with the requirements outlined in *Section 3.10 - Clearance inspection* SafeWork NSW (2022).

Soil validation sampling of the removal area will be required. Refer to Section 4 – Validation Method section of this addendum for soil sampling requirements.

Clearance certificates will be required for:

1. Any plant and equipment being removed from the exclusion zones.
2. The excavation area following completion of removal works and final scrape.
3. Haul road at completion of material movement.
4. Final placement area post installation of marker layer.

3.3.2 Air monitoring

The SafeWork NSW (2022) *Code of Practice: How to Safely Remove Asbestos* state that *"control monitoring is not required for bonded asbestos removal but may be carried out by an independent licensed asbestos assessor or competent person to ensure that controls being used to eliminate or minimise exposure to airborne asbestos are effective.*" Additionally, it also states that "*Air monitoring should be considered where the asbestos removal work is being undertaken in or next to a public location".*

Given the public location of the works, it is recommended that asbestos air monitoring be undertaken onsite to confirm control measures are being appropriately implemented.

All air monitoring will be undertaken in accordance with the requirements set out in Section 3.11 of the Code of Practice: *How to Safely Remove Asbestos* (SafeWork NSW, December 2022).

Monitoring requirements will include:

- Airborne Asbestos Monitoring during all works undertaken within areas identified with unexpected finds of asbestos; and,
- Final clearance monitoring within the remediation area following the removal of all visible asbestos contamination.

Operational airborne asbestos monitoring is to be conducted during all potentially asbestos disturbing works on Site. The number of monitors used will be dependent on the proposed works with a minimum of two sample pumps to be used.

Location of monitors will be assessed daily as required by Site works and will be based upon the most susceptible areas to airborne asbestos contamination and transportation or areas of higher risk, e.g. downwind of works, enclosure entry/exit, potential off-Site receptors etc.

Monitoring results will be reported to the client as soon as possible after the conclusion of the monitoring interval. Results are required to be readily available and accessible to both Site management, employees and PCC's Project Manager and displayed in a prominent position. Every week, the Project Manager will provide a summary of current monitoring results detailing dates of sampling, fibre concentration levels and the date of notification of results to the Site foreman and PCC's Project Manager. These results will also be communicated to all site personnel. If an exceedance of air monitoring results for asbestos fibres is detected, the Site Manager shall inform PCC's Project Manager and advise of the actions taken in accordance with Table 3-4 below.

The risk associated with asbestos relates to the inhalation of airborne asbestos fibres. These fibres may be liberated by disturbance of the asbestos-containing material or dusts. Air sampling is used to determine exposure to airborne asbestos fibres, using a modified version of the NOHSC, (2005). Once asbestos exposure levels are determined, a level of action is to be taken in response to the recorded levels. These actions are provided in Section 3.11 of the SafeWork NSW (2022) and are presented below.

Table 3-4: Recommended Action Levels for Asbestos Exposures

Measured Fibre Concentration (% of Exposure Standard)	Control Measures	Recommended Action
<0.01 fibres/mL	No new control measures are necessary.	Continue with Control Measures.
≥0.01 fibres/mL but ≤ 0.02 fibres/mL	1) Review	Review Control Measures.
	2) Investigate	Investigate the cause.
	3) Implement	Implement controls to eliminate or minimise exposure and prevent further release.
>0.02 fibres/mL	1) Stop removal work	Stop removal work.
	2) Notify regulator	Notify the relevant regulator by phone followed by a written statement that work has ceased and the results of the air monitoring
	3) Investigate the cause	For example, conduct a thorough visual inspection of the enclosure (if used) and associated equipment in consultation with all workers involved with the removal work
	4) Implement controls to eliminate or minimise exposure and prevent further release	For example, extend the isolated/barricaded area around the removal area/enclosure as far as reasonably practicable until fibre levels are at or below 0.01 fibres/mL, wet wipe and vacuum the surrounding area, seal any identified leaks (e.g. with expanded foam or adhesive (cloth or duct) tape) and smoke test the enclosure until it is satisfactorily sealed.
	5) Do not recommence removal work until further air monitoring is conducted	Do no recommence until fibre levels are at or below 0.01 fibres/mL

It is important that the interpretation of these results is undertaken by an experienced person conversant with the Membrane Filter Method and its limitations. All results of air sampling must be recorded and filed. The results will be reported and made available to all employees.

Airborne Asbestos Monitoring will be carried out using the only internationally recognised sampling and analytical methodology, *The Membrane Filter Method for Estimating Airborne Asbestos Dust* [NOHSC: 3003 (2005)].

3.3.3 High Visibility Marker Layer

The marker layer shall consist of a bright coloured (e.g. orange) non-woven polyester mesh with a minimum density of approximately 150 grams per square metre (or equivalent). The marker layer must:

- Be easily recognisable within soils (i.e. bright orange in colour).
- Be permeable and durable as a long-term marker layer (i.e. > 150 grams per square metre).
- Be secured to the ground, to prevent movement.
- Maintain integrity during remedial/civil works such as capping layer insulation and prevent manual hand tools from penetrating.
- Be overlapped by a minimum 200mm at the edges between sheets/rolls.
- Overlay the finished capped area by a minimum of 0.5m on all sides.

Damage sustained to the marker layer during or following installation will be rectified by placement of a patch of marker layer atop the damage and including sufficient overlap for the shear strength of the underlying soil.

3.3.4 Capping Requirements

Following installation of the marker layer, a minimum 0.5 m thick capping layer will be placed over the top of the marker layer. Capping material should consist of site sourced suitable fill or imported material compliant with the requirements for material importation outlined in Section 3.3.6 below.

To reduce the potential for erosion or penetration of the capping layer, loose or unconsolidated sediments should not be used to create the cap.

Areas are to be finished with a layer of grass, mulch or concrete (for the pedestrian pathway) as is required for future land use. A schematic example of the required capping is shown in image below.

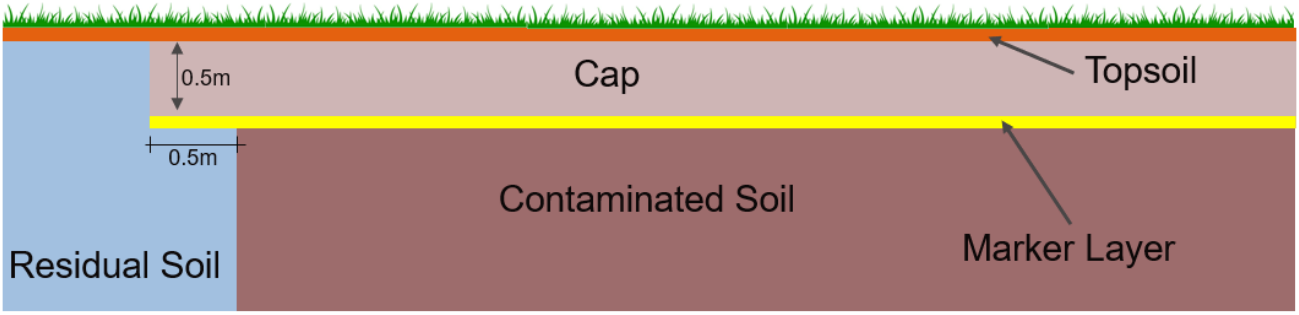

Image 1: Landscaped Area Capping Example

3.3.5 Capping Materials and Import Material Verification

The backfill material will be limited to:

- Onsite sourced material that has been demonstrated to be compliant with the proposed end land use. This would include natural material at the Site as well as fill material outside of the inferred asbestos-impacted area.
- Imported virgin excavated natural material (VENM).
- Imported excavated natural material (ENM).

- Other imported materials that have been certified as compliant with a NSW EPA issued resource recovery exemption.

Prior to the reuse of any onsite sourced material, the Site Manager shall provide PCC's Project Manager with documentation certifying that the site sourced material meets the definition of VENM or ENM. Noting PCC's preferred position is that certified imported VENM or ENM is the preferred backfill material.

All material importation should comply with the requirements outlined in the RAP.

3.3.6 Survey of Cap

A survey will be carried out by a suitably qualified and experienced contractor to document the lateral extent of the marker layer installed over retained in situ contaminated soils on-site. Subsequent surveys will be undertaken on completion of the capping layers and pavement to confirm the thicknesses of the various layer. A copy of the survey figures will be included in the validation report.

The survey should include:

- Site boundary.
- Lateral extents of cap and impacted media.
- Elevations at marker layer and surface cap, and thickness of cap.
- Material types used for capping layer in each area and marker layer material type.

The survey will be provided for inclusion into the validation report.

3.4 Remedial Works – Asbestos conduit

3.4.1 Decommissioning

The electrical services will be depowered and disconnected by a NSW Government Level 1 Accredited Service Provider (ASP) for constructing distribution network assets in NSW, prior to any disturbance. Specific instruction should be sought from Endeavour Energy on any decommissioning specific requirements of the electrical service.

3.4.2 Removal of Access and Inspection Pits

All near surface (i.e. <0.5m below surface level) infrastructure that contains asbestos, such as risers, access pits etc are to be removed by a licensed asbestos contractor. Removal works will comply with the requirements outlined in the SafeWork NSW (2022) *Code of Practice: How to Safely Remove Asbestos.*

The Site Manager shall commission a photographic record documenting the removal of the near surface infrastructure and immediate post removal condition of the affected area. The photographic records will be provided for inclusion in the Validation Report to PCC, as per Section 4.5 Asbestos Conduit Abandonment.

All asbestos waste generated form the removal works will be required to be disposed of as Special Waste to a suitably licensed landfill facility.

Asbestos air monitoring should be undertaken in accordance with the requirements and processes outlined in Section 3.3.3.

Following the removal works, and prior to removal of any plant/vehicles or equipment from the asbestos works area, an Asbestos Clearance Certificate will be issued. Asbestos clearance should be undertaken in

accordance with the requirements outlined in *Section 3.10 - Clearance inspection* SafeWork NSW (2022). Refer to Section 3.3.2.5 – Asbestos Clearance certificate.

3.4.3 In situ abandonment of asbestos conduit

Specific instruction should be sought from Endeavour Energy on removal of cabling prior to abandonment and should be conducted in accordance with Arcadis' Lighting Relocation Design Drawings (ARP6198-A536471).

Where pits have been removed and exposed ends of the conduit is present, the ends of the conduit will be sealed to prevent ingress of water prior to abandonment by a suitable means such as installation of a 0.5m plug inside the conduit using, for example, concrete slurry or waterproof expanding foam.

3.4.4 Survey

A survey will be carried out by a suitably qualified and experienced contractor to document the location and depth of the asbestos conduit retain onsite. Subsequent surveys will be undertaken of the completed surface level of the Site to provide details on the capping thickness present overlying the abandoned services. A copy of the survey figures will be included in the validation report.

The Site Manager shall commission a photographic record of the insitu footprint of the abandoned conduit and shall provide the photographic record for inclusion in the validation report as per Section 4.5 Asbestos Conduit Abandonment.

The survey should include:

- Site boundary.
- Lateral extents of asbestos conduits.
- RL details for the top of the conduit along regular intervals along the entire length.
- Description of the conduit configuration. i.e. single conduit, grouped set of six pipes etc.

4 Validation Method

Validation data are required to be collected to verify the effectiveness of the remediation works and document the condition of the site as being suitable for the proposed future uses. Validation activities to be undertaken for the remediation areas include the following:

- Documentation of installation of containment measures.
- Clearance sampling / asbestos clearance certificate for removal areas.
- Validation of imported fill material to demonstrate its suitability for use as a capping layer or in trenching works.
- Movement tracking of all soil and fill material onsite.
- Waste classification of excess materials requiring offsite disposal (if required).
- Surveys showing depth of contained material, height of capping layers and locations and depths of services onsite.
- A photographic record verifying the removal of the near surface infrastructure, sealing of the conduit and the insitu footprint of the abandoned conduit.

4.1 Excavation Validation

This will be applied to areas where asbestos contaminated soils were present, or where pit removal has occurred.

Visual inspection will be undertaken by the Licensed Asbestos Assessor to undertake an asbestos clearance inspection to allow reoccupation of the work area. If it suspected that AF/FA has been generated as a result of the removal works, or evidence come to light that AF/FA is present, soil sampling should be completed on the walls and base of the excavated area as part of the validation works. Soil samples will be collected at a rate in accordance with the NSW EPA (2022) *Sampling Design Part 1- Application* guidelines, based on the area of the excavation for asbestos analysis (500ml sample size).

This work is generally completed as part of the requirements of the Asbestos Clearance Certificate will be issued, prior to removal of asbestos work area access restrictions in a stagged approach.

4.2 Marker Layer Inspection

Visual inspection will be undertaken by the environmental Consultant to verify the installation of the marker layer and minimum 200mm overlap where required as per the capping requirements for the specific works area. Photographic records and a survey of the marker layer installation, including vertical and lateral extents by the Contractor will be retained for inclusion in the validation report.

4.3 Capping Layer Validation

Material to be used as a capping layer must be validated by the environmental consultant to be environmentally suitable, consisting of VENM, ENM, or material considered suitable for beneficial reuse via a resource recovery exemption issued by NSW EPA. Additionally, any onsite sourced capping layer material must not exceed the adopted site validation criteria for soils. Photographic records and a survey of the capping layer installation, which details the minimum 0.5m final thickness of the capping layer including the vertical and lateral extents by the Contractor, which will be retained for inclusion in the validation report.

4.4 Validation of Storage Areas

Upon completion of removal of any stockpiled contaminated material, in the event that interim stockpile storage areas were required to be used, validation of the stockpile excavation footprint will be performed by way of:

- Visual inspection and photographic log soil sampling if the stockpile was placed on heavy duty (minimum 200µm plastic) or geofabric.
- Visual inspection, photographic log and soil sampling if the stockpile was placed directly on soils.

The visual inspection will confirm no visible asbestos fragments are present in the top 100mm of soils, no foreign materials remain and that all stockpile materials have been removed. Photographic records will be prepared by the Environmental Consultant and retained for inclusion in the Validation Report.

Upon completion of the removal process and satisfactory visual inspection results validation soil sampling will be conducted within the stockpile footprint. Soil samples will be collected at a rate in accordance with the NSW EPA (2022) *Sampling Design Part 1- Application* guidelines, based on the area of the footprint and a minimum eight samples across a systematic grid for asbestos analysis (500ml sample size).

4.5 Asbestos conduit abandonment

Photographic evidence will be collected of all abandonment works associated with the asbestos conduits including removal works of pits, plug installation and depth of conduit below ground level. This will be supported with survey data of conduit location and depth, developed as per Section 3.4.4.

5 Site Validation Report

At the completion of remedial works, a site validation certificate will be prepared, will not be in accordance with but reference to the NSW EPA (2020). The Site validation certificate will include:

- An executive summary.
- The scope of reporting work undertaken.
- Site identification details.
- Information on the remedial works undertaken, including material tracking for material relocated onsite.
- Information on the estimated volume of waste taken offsite (including receipts from the receiving facility, and a reconciliation of waste receipts with remediation contractor waste disposal logs).
- The results of field work and laboratory analysis (if applicable).
- An assessment of field and laboratory quality assurance / quality control data (if applicable).
- Results of field inspection observations, including documentation of installed marker layers.
- Survey data of surface levels (RLs) to confirm adequate thickness of capping.
- Survey locations of retained asbestos services in situ including orientation and depth below surface.
- Non-conformances or deviations from the RAP and details of rectification of non-conformances register
- A figure showing the locations of asbestos impacted material.
- Advice on site suitability for the proposed land use.
- Information on ongoing site monitoring requirements, including any data gaps and linkage to the proposed LTEMP; and
- Conclusions.

6 Long Term Environmental Management Plan

At the completion of remedial works, a legally enforceable long term EMP should be prepared to outline the measures to eliminate the risk to human health or the environment from the buried contaminated material onsite. The EMP will detail the management strategies required to ensure the long-term integrity of the marker and capping layers. For example, the EMP will specify the requirements for routine inspection of the capping layer, breaches to the containment system and management controls for intrusive works around and below the marker layer.

The EMP will be prepared following the completion of the Validation Report for the Site and will include, as a minimum:

- Statement of objectives.
- Outline of on-going contamination concerns that require management under the EMP.
- A survey plan showing extent and distribution of contamination.
- A survey showing capping thicknesses and location of services.
- Outline of roles and responsibilities under the EMP.
- Description of environmental control measures including environmental monitoring and reporting requirements.
- Description of management controls (including site-specific asbestos management protocols).
- Corrective or contingency measures in the event of a breach.
- Description of health and safety procedures for particular works.
- Inclusion of a mechanism for legal enforcement of the EMP
- Requirements for the review and amendments to the EMP
- Timeframe for EMP implementation and review period.
- Procedures for intrusive works for different penetration of cap scenarios:
    - Penetrate the cap but not the marker layer, which may include a simple capping reinstatement to original specification.
    - Penetrate the marker layer and disturb underlying impacted soil, which may include appropriate material management in addition to capping reinstatement.

7 Conclusions

Based on Arcadis’ assessment of the information presented in the available historical contamination assessment reports, Arcadis considers that the remedial goal can be achieved, and the Site made suitable for the proposed land use, subject to:

- The implementation of the strategies and methodologies set out in this RAP Addendum.
- Preparation of a site validation report.
- Preparation and implementation of a long-term environmental management plan that is legally enforceable.

This report must be read in conjunction with the Limitations in Section 8.

8 Limitations

The findings of this report are based on the Scope of Work described in this report. Arcadis performed the services in a manner consistent with the level of care and expertise exercised by members of the environmental profession. That standard of care may change, and new methods and practices of exploration, testing and analysis may develop in the future, which might produce different results.

No warranties, express or implied, are made. Subject to the Scope of Work, Arcadis' assessment is limited strictly to identifying typical environmental conditions associated with the subject property.

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 from sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

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From a technical perspective, there is a high degree of uncertainty associated with the assessment of subsurface, aquatic and atmospheric environments. They are prone to be heterogeneous, complex environments, in which small subsurface features or changes in geologic conditions or other environmental anomalies can have substantial impact on water, air and chemical movement.

Arcadis' professional opinions are based upon its professional judgment, experience, and training. These opinions are also based upon data derived from the limited testing and analysis described in this report. It is possible that additional testing and analysis might produce different results and/or different opinions. Arcadis has limited the scope as detailed herein, that which was agreed upon with the client.

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