



Remedial Action Plan

Proposed Mixed Use Commercial Development

40 Myoora Road, Terrey Hills NSW

Prepared for Gardoxi Pty Ltd

1 March 2022

Version 2

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This report has been prepared for Isaac Property in accordance with the terms and conditions of appointment for proposal P21385_v1 dated 1 December 2021.

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1. Introduction

Reditus Consulting Pty Ltd (Reditus) was engaged by Isaac Property (the client) to prepare a Remedial Action Plan (RAP) for the proposed mixed use commercial development site located at 40 Myoora Road, Terrey Hills NSW (herein referred to as 'the site').

The location of the site is provided in **Figure 1, Appendix A**.

It is understood the site is intended to be developed for use as a multi-purpose area comprising of various potential future commercial land uses permissible within the zone, including restaurants, indoor recreation facility (gym), garden centre and a childcare centre. To support the property acquisition, Reditus completed a Due Diligence Environmental Site Assessment (DD/ESA) dated 21 January 2022.

The combined DD/ESA reported the presence of asbestos in soil contamination in the form of bonded asbestos containing material (ACM)(>7mm) and Fibrous Asbestos (FA) within the top 10 cm of the soil profile at four (4) locations, thus failing the National Environment Protection Measure (NEPM) (2013) Health Screening Level A (HSL-A) criteria for 'No visible asbestos in the top 10cm of the soil profile' at these locations.

It is also noted asbestos was positively identified by the laboratory in material samples collected from the residential building eaves, sub-floor space soil surface and storage shed/building at the site.

Reditus therefore recommended that remediation was required to render the site suitable for the proposed mixed use commercial development at the site, with the preparation and implementation of a RAP (this report) to address the identified asbestos in soil contamination at the site.

1.1. Objective

The objective of this RAP is to document activities, procedures, control measures, contingencies, and validation requirements to facilitate effective remediation of the site for the proposed mixed use commercial development in accordance with State Environment Protection Policy (SEPP 55) Remediation of Land.

The RAP informs the development application to Council and the site management plan to be prepared prior to commencement of construction works.

1.2. Scope of Works

The following scope of works was completed by Reditus:

- Review of previous contamination reports.
- Summarise the site investigation history and conceptual site model (CSM) to identify viable remediation options.
- Document the identified contamination risks to human health and/or the environment.



- Define the site remediation objectives that will be achieved by the RAP to ensure that the site will be made suitable for its proposed land use, and which will result in no unacceptable risk to human health or to the environment.
- Define the extent of remediation required at the site.
- Assess options and remedial technologies to achieve the remediation objectives and justify a preferred approach, which includes the consideration of the principles of ecologically sustainable development.
- Document all procedures and plans to reduce risks posed by contamination to acceptable levels for the proposed site use.
- Establish the environmental safeguards required to complete the remediation in an acceptable manner, including consideration of the potential for off-site impacts (such as air quality, odour, and aesthetics).
- Address contingencies and unexpected finds protocols.
- Identify the necessary approvals and licences required by regulatory authorities including any items contained in development consent conditions.
- Outline waste classification, handling and tracking requirements in accordance with the Guidelines for the NSW Site Auditor Scheme and Waste Classification Guidelines (EPA 2014).
- Document Site Validation requirements with clearly defined acceptance validation criteria, including a Validation Sampling and Analysis Quality Plan.
- Preparation of a RAP in general accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Land and NEPC (2013) NEPM Guidelines.



2. Site Identification

The location of the site is provided in **Figure 1, Appendix A** and the site layout is shown in **Figure 2, Appendix A**. A summary of the site identification details is provided in **Table 2-1** below.

Table 2-1: Site Identification Summary

Site Characteristics	Details
Street Address	40 Myoora Road, Terrey Hills, NSW 2084
Lot & Deposited Plan	Lot 180 of DP752017
Site Area	Approximately 1.5 hectares (ha)
Site Coordinates <i>Approximate Centre of Site (Geographic)</i>	Easting: -33.691126 Northing: 151.220864
Local Government Area	Northern Beaches Council
Zoning	RU4 – Rural Small Holdings
Current Land Use	Unoccupied Predominately covered in grass and small vegetation, largely overgrown and unkept with occasional anthropogenic materials residing on the surface. A residential dwelling and large shed are located in the south-eastern portion of the site and several storage containers, sheds and storage areas in the north-western portion, including several small stockpiles of construction and demolition material and debris.
Proposed Land Use	Mixed use commercial development It is understood the site is intended to be developed for use as a multi-purpose area comprising of various potential future commercial land uses permissible within the zone, including restaurants, indoor recreation facility (gym), garden centre and a childcare centre. To support the property acquisition, Reditus completed a Due Diligence Environmental Site Assessment (DD/ESA) dated 21 January 2022.
Trigger for Assessment	To inform pending development application with Northern Beaches Council.
Surrounding Land Uses	Land uses surrounding the site include: <ul style="list-style-type: none">▪ North: A light industrial/rural property adjacent the northern site boundary, followed by Terrey Hills Swim School, German International School, St Anthony in the Fields Catholic Church and grounds, wedding reception hospitality facility with mixed land uses including vacant land and rural properties beyond.



Site Characteristics	Details
	<ul style="list-style-type: none">▪ South: A light industrial properties including a truck mechanic, followed by Terrey Hills Tavern, rural properties and landscaping supply store beyond.▪ East: Mona Vale Road, followed by NSW Rural Fire Service, Marine Rescue NSW and NSW SES stations, public recreation and open space land with bushland and Kimbriki Resource Recovery Centre beyond.▪ West: Myoora Road, rural properties with Kierans Creek and bushland beyond.
Site Layout	Refer to Figure 1 and Figure 2, Appendix A.

2.1. Site Condition

Reditus attended the site on 16 December 2021 to conduct a site inspection and complete intrusive soil sampling as part of the combined DD/ESA. Observations made during the site inspection are described as followings:

- The site is currently unoccupied.
- The site topography slopes from the south-eastern to the north-western boundary.
- The site is predominately covered in grass and small vegetation, largely overgrown and unkept with occasional anthropogenic materials residing on the surface.
- A residential dwelling and large shed are located in the south-eastern portion of the site.
- Several storage containers, sheds and storage areas are located in the north-western portion of the site, including several small stockpiles of construction and demolition materials and debris.
- Small quantities of gas cannisters (<20L) and various oils (<20L), including agricultural inoperative machinery in various states of disrepair were also observed in the north-western portion of the site.
- Visible signs of contamination observed at the site comprised of asbestos containing fibre cement sheeting debris on the surface in two (2) locations in the central-northern portion of the site.
- There was no other visual evidence of underground storage tanks (USTs), potentially high-risk contaminating infrastructure or activities or visual and olfactory signs of contamination observed onsite during the site inspection.



3. Reditus (2021) Due Diligence Environmental Site Assessment Summary

Reditus was engaged to complete a Due Diligence Environmental Site Assessment (DD/ESA) by Isaac Property to facilitate the property acquisition of the proposed mixed use commercial development site. The objective of the due diligence investigation was to adequately characterise the site for potential contamination and provide advice on whether the site was suitable for the proposed future land use, including a fast-food restaurant, gym, garden centre and a childcare centre.

To facilitate the proposed acquisition of the site, Reditus completed a Due Diligence and ESA investigation inclusive of a desktop assessment and intrusive site investigation.

The objectives of the investigation were achieved through the completion of a soil assessment to identify issues, concerns or environmental risks and liabilities associated with the present and historical uses of the site. The investigation also assessed whether there was potential for soil and/or groundwater contamination associated with historical activities both on and off-site. Analytical results from the investigation were compared against land use criteria applicable for low-density residential properties due to the most sensitive receptor within the proposed development being a childcare centre.

During the investigation, the following results were observed:

- Fill of unknown origin was found to extend between 0.15 and 1.3 metres below ground level (mbgl).
- No stains, odours, or other visible signs of contamination (with exception of ACM) were noted on the site. No photoionisation detector (PID) readings exceeded 0.5 parts per million (ppm) above the background concentration.
- Chemical contaminants of potential concern (COPC) in soil were reported below the adopted site assessment criteria in soil samples analysed with exception of a minor benzo(a)pyrene (1.3 mg/kg) exceedance of the ecological screening level (ESL) criteria (0.7 mg/kg) in TP17. The NEPM (ASC 2013) ESLs are based on an older set of Canadian soil quality guidelines, which have been subsequently revised. The revised guidance document provides higher reliability screening levels that were developed using additional and more recent information included within the NEPM (ASC 2013) methodology. The newly derived high reliability screening levels are more than an order of magnitude greater than the ESLs previously listed in the NEPM (ASC 2013). Reditus consider the higher reliability values more appropriate than the lower NEPM (ASC 2013) values. In the case of urban land, the revised ESLs are considerably higher than the corresponding HSLs, and are not likely to determine the requirements for remediation.
- Bonded ACM fragments were observed during 10L field screening of soils in TP02 and TP04 at depths of up to 0.3mbgl within fill materials at concentrations of 0.0024 %w/w and 0.004 %w/w, respectively, below the NEPM (2013) HSL-A criteria of 0.01 %w/w.



- Fibrous Asbestos (FA) in the form of Amosite asbestos containing loose fibre bundles was positively identified by the laboratory in sample TP15 (0.1 mbgl) at a concentration below the limit of reporting (0.001%w/w).
- An ACM (>7mm) fragment containing Chrysotile and Amosite asbestos was positively identified by the laboratory in the 500mL quantification sample collected at TP19 at 0.1 mbgl.
- Asbestos was positively identified by the laboratory in material samples PACM-Eaves, PACM-UH and PACM-Shed, collected from the residential building eaves, sub-floor space soil surface and storage shed/building respectively.

The results of the assessment indicated asbestos in soil contamination from ACM (>7mm) at TP02, TP04 and TP19; and FA at TP15 (albeit at concentrations below the health screening level (HSL-A) criteria and/or limit of reporting) is present within the top 10cm of the soil profile and thus fails the NEPM (2013) HSL-A criteria for 'No visible asbestos in the top 10cm'. The identified contamination was considered to present an unacceptable risk to potential on-site human receptors.

Based on the findings of the investigation and reported asbestos in soil contamination in the form of ACM (>7mm) and FA within the top 10cm of the soil profile, Reditus surmised that the site required remediation to render it suitable for the proposed development. A RAP was required to document the proposed remedial strategy to address the identified asbestos in soil contamination.

The following recommendations were also provided based on the outcomes of the assessment:

- Preparation and implementation of a RAP to address the identified asbestos in soil contamination.
- Preparation of an interim site management plan (ISMP) to appropriately manage human health risks posed by the identified asbestos in soil contamination on site prior to site remediation works.
- If asbestos is to remain onsite following redevelopment, preparation of an Asbestos Management Plan (AMP) and asbestos register for the site to comply with WHS Regulation (2017) when the site becomes a 'workplace' (i.e. during any excavation and construction).
- Completion of a Hazardous Materials Survey of on site buildings before commencement of demolition works.
- Classification of all materials requiring removal from the site for the proposed development in accordance with NSW EPA (2014) Waste Classification Guidelines

At the time of issuing this report, Reditus had not been provided with any other previous reports or data relevant to the site.



4. Site Setting and Surrounding Environment

A summary of the condition and environmental setting of the site and surrounding areas is provided in **Table 4-1**.

Table 4-1: Site Setting and Surrounding Environment

Item	Detail
Topography	The sites elevation ranges approximately between 173-188 m Australian Height Datum (AHD), with a moderate gradient towards the north-western site boundary.
Hydrology	<p>There are no permanent surface water bodies present onsite. Surface water run-off is likely to follow the sites topography and enter the local stormwater drainage network before discharging to Kierans Creek approximately 350 m west of the site.</p> <p>Kierans Creek forms part of a regional drainage and catchment system which eventually discharges to Cowan Creek approximately 4.8km west of the site. Cowan Creek is a tributary of the Hawkesbury River.</p>
Regional Geology	The 1:100,000 Geological Survey of NSW Map for Sydney (Geological Series Sheet 9130 Edition 1, 1983) shows the site to be located on Middle Triassic Hawkesbury Sandstone. The unit is described as medium to coarse grained quartz sandstone with minor shale and laminite lenses.
Soil Lithology	<p>Desktop Searches</p> <p>According to the NSW Department of Planning, Industry & Environment soil landscapes maps, the primary soil landscapes identified on site are 'Somersby Residual', comprising:</p> <ul style="list-style-type: none"> ▪ Gently undulating to rolling rises on deeply weather Hawkesbury Sandstone plateau. ▪ Local relief to 40m with slopes of 15 to <60%. ▪ Soils generally comprise moderately deep to deep (100-300cm), Yellow Earths and Earthy Sands on crests and slopes, with Grey Earths in poorly drained areas and leached or siliceous sands along drainage lines. <p>Regional soils are characterised by localised permanent and seasonal waterlogging, moderate erosion hazard, very low soil fertility and high permeability.</p> <p>Local Soils and Geology</p> <p>The soil lithology encountered during the intrusive investigations works included:</p> <ul style="list-style-type: none"> ▪ Fill: Fill at depths ranging from surface to between 0.15 –1.3 m. Fill materials were characterised by predominantly fine to medium grained silty sand and clayey sand. ▪ Natural: Natural material was encountered at depths ranging between 0.15 and 1.3 m. The predominant material was fine to medium grained clayey gravelly sand and clayey sand with inclusions of sub rounded gravels underlain by weathered Hawkesbury Sandstone.



Item	Detail
Acid Sulfate Soils (ASS)	Following a review of information contained within the National Acid Sulfate Soils Atlas, the site has been identified as being located within zone Cq(p4) ASS in inland lakes, waterways, wetlands and riparian zones. There is an extremely low probability of ASS occurring in the region, as such further investigation of potential ASS was not deemed necessary.
Registered Groundwater Bore Search	<p>The Land Insight and Resources Report (LIR) obtained for the site identified thirty-eight (38) groundwater bores within 2 km of the subject site. The nearest bore (GW107392) is 70 m north-west of the site and is used for household purposes. The following is a breakdown of the bore uses within 2 km of the subject site:</p> <ul style="list-style-type: none"> ▪ Irrigated Agriculture – 3 bores. ▪ Water Supply – 10 bores. ▪ Household – 21 bores. ▪ Recreation – 2 bores. ▪ Drainage – 1 bore. ▪ Unknown or no recorded use – 1 bore. <p>The hydrogeologic units within 500 m of the site include late Permian/Triassic sediments (porous media – consolidated). Aquifers within the region are typically described as porous, extensive and low to moderate productivity.</p> <p>The site is not identified as being within a drinking water catchment, groundwater vulnerability and exclusion zone or having groundwater dependant ecosystems.</p> <p>The site is however located within the Hawkesbury River Underground Petroleum Storage System (UPSS) Environmentally Sensitive Zone.</p>
Local Hydrogeology	Groundwater was not encountered during the DD/ESA (Reditus 2022) to a maximum investigation depth of 1.9 metres below ground level (mbgl).
Sensitive Receptors	<p>The approximated distances to sensitive environmental receptors include:</p> <ul style="list-style-type: none"> ▪ St Anthony in the Fields Catholic Church approximately 142 m north of the site. ▪ Marine Rescue NSW Station approximately 86 m south-east of the site. ▪ NSW SES Warringah Pittwater Unit station approximately 114 m south-east of the site. ▪ NSW Rural Fire Service Station approximately 90 m east of the site. ▪ German International School Sydney approximately 150 m north of the site. ▪ Terrey Hills Swim Club approximately 102 m north-west of the site. ▪ Kierans Creek approximately 350 m west of the site.



5. Conceptual Site Model

Schedule B(2) of the NEPM (NEPC, 2013) describes a conceptual site model as:

“A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The development of a CSM is an essential part of all site assessments and provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future”.

Based on the site history, site setting, and contamination identified above, the following CSM has been developed, as detailed in the DD/ESA (Reditus 2022).

5.1. Known and Potential Contamination Sources

Known and potential sources of contamination at the site, the associated contaminants of potential concern (CoPC) and potentially affected media refined from the results of the DD/ESA investigation are listed in **Table 5-1** below.

Table 5-1: Known Contaminant Sources

Source	CoPC	Criteria	Exceedances
<p>Fill Materials</p> <p>Importation of fill material of unknown origin and demolition of historical structures.</p> <p>ACM fragments (>7mm) and FA were identified in near surface soils on site.</p>	Asbestos	<p>No visible ACM to 100 mm depth</p> <p>0.05 % w/w bonded</p> <p>0.001 % w/w</p>	<ul style="list-style-type: none"> ▪ TP15 – fibrous asbestos (FA) identified by the laboratory in a sample from 0.1 mbgl (Concentration below NEPM HSL-A & LOR, 0.001 %w/w). ▪ TP02 and TP04 - bonded ACM (>7mm) identified within top 0.1-0.3 mbgl of soil profile (Concentrations below NEPM HSL-A, 0.01%w/w). ▪ TP19 - bonded ACM (>7mm) identified by laboratory in sample from 0.1 mbgl. ▪ Site surface where vegetation is overgrown – potential visible asbestos present.

5.2. Review of Potential and Complete Exposure Pathways

5.2.1. Human Health – Direct Contact and Inhalation Pathway

The results of the DD/ESA investigation suggest a potential complete direct contact and inhalation (of fugitive dust) pathway exists for current and future site users, visitors, intrusive maintenance/construction workers on-site from surface asbestos and asbestos in soil (from ACM >7mm and FA) contamination.



5.3. Potential Exposure Pathway Assessment

A refined tabular CSM has been prepared for the site based on the outcomes of the DD/ESA and known contaminants listed in **Table 5-1**. The tabular CSM shown in **Table 5-2** describes potential linkages and assesses each of the linkages as probably, possible, or unlikely based on the likelihood of occurrence and availability of data.

Table 5-2: Potential Exposure Pathway Assessment

Source	Pathway	Receptor	Exposure Assessment
Uncontrolled Fill <i>Asbestos in soil</i>	Direct contact with ACM and FA, and inhalation of fugitive dust from asbestos contamination in soil.	Construction workers and future site users.	<p>Current Use: Possible</p> <p>Construction Phase: Possible</p> <p>Asbestos management plan to be implemented during construction.</p> <p>De-grubbing or slashing of vegetation and inspection of site surface for further possible visible ACM.</p> <p>TP15 hotspot containing FA – To be removed and area visually inspected and cleared upon completion of removal works.</p> <p>TP02, TP04 and TP19 hotspots containing bonded ACM – Surface tilling works of top 10cm of soil profile, any ACM encountered to be removed by a licensed asbestos removalist, areas visually inspected and cleared upon completion of removal works.</p> <p>Future Use: Unlikely / Controlled</p> <p>Soils potentially impacted by asbestos to be removed or assessed for site suitability.</p>

5.4. Duty to Report Contamination

The results of the investigation suggest that there is no requirement to notify the reported ACM and FA on site to the NSW EPA under Section 60 of the Contaminated Land Management Act (1997) subject to development of a RAP and successful remediation of identified contamination.



6. Data Quality Objectives

The Data Quality Objective (DQO) process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQO defines the experimental process required to test a hypothesis. The DQO process has been developed to ensure that efforts relating to data collection are cost effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

It is recognised that the most efficient way to accomplish these goals is to establish criteria for defensible decision making before data collection begins and develop a data collection design based on these criteria. By using the DQO process to plan the investigation effort, the relevant parties can improve the effectiveness, efficiency and defensibility of a decision in a resource and cost-effective manner.

The DQO process consists of seven steps, which are designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for this data gap assessment can be summarised as:

- Step 1: State the Problem – concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem;
- Step 2: Identify the Decision – identify what questions the study will attempt to resolve, and what actions may result;
- Step 3: Identify the Inputs to the Decision – identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement;
- Step 4: Define the Study Boundaries – specify the time periods and spatial area to which decisions will apply. Determine when and where data should be collected;
- Step 5: Develop a Decision Rule – define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions;
- Step 6: Specify Tolerable Limits on Decision Errors – define the decision maker's tolerable decision error rates based on a consideration of the consequences of making an incorrect decision; and
- Step 7: Optimise the Design – evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.

The DQOs are provided in **Table 6-1** below and were derived in accordance with Australian Standard 4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds' (AS 4482.1-1997).



Table 6-1: Data Quality Objectives

Step	Discussion
<p>Step 1. State the problem</p>	<p>Based on the findings of the DD/ESA (Reditus 2021), Reditus considered that the identified contamination is considered to present an unacceptable risk to potential on-site human receptors.</p> <p>Potential sources of contamination have been identified at the site, specifically, filling of unknown origin with reported inclusions of asbestos contaminating materials (ACM) and fibrous asbestos (FA).</p> <p>Based on the findings of the DD/ESA investigation the site can be made suitable for the proposed mixed use commercial development land use, subject to adherence to this RAP and subsequent remediation/removal/or management of identified bonded ACM contamination surrounding TP02, TP04 and TP19 and FA contamination surrounding TP15 (Reditus 2022).</p>
<p>Step 2: Identify the decision/goal</p>	<p>The goal is to remediate the site such that it is suitable for the proposed redevelopment from a contaminated land perspective. This will be achieved through implementation of remedial management procedures and site validation works.</p> <p>If elevated concentrations of COPCs are identified at the site following completion of remediation works and site validation sample:</p> <ul style="list-style-type: none"> ▪ What is the extent of the impact? ▪ Does any COPC at the site occur at concentrations that pose or may pose an unacceptable liability or risk to the environment and/or human health to persons who will utilise the future development? <p>If so, what is the order of priority to minimise the risk and what additional measures are required to mitigate, remediate, or manage the risk? As such would this significantly alter the current remedial strategy.</p>
<p>Step 3: Identify the information inputs</p>	<p>Key data required to resolve the project problem includes</p> <ul style="list-style-type: none"> ▪ Asbestos in soil validation results upon completion of the removal of fill soils at the TP15 hotspot location. ▪ Visual clearance of potential further visible asbestos in the top 10cm of the soil profile at the TP02, TP04 and TP19 hotspot locations. ▪ Visual clearance of potential visible asbestos across the site surface upon completion of the de-grubbing or slashing works of the overgrown vegetation at the site. <p>Given proposed development includes sensitive land use as a childcare centre with potential accessible soil, the tier 1 soil assessment criteria (SAC) has been sourced from the NEPC (2013) NEPM as follows:</p> <ul style="list-style-type: none"> ▪ Health Investigation Levels (HIL-A) low density residential. ▪ Health Screening Levels (HSL-A) for asbestos contamination in soil. <ul style="list-style-type: none"> – With reference to the WA DOH (2009, updated 2021) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia <p>In the case that COPC are detected that do not currently have a state or nationally endorsed assessment criteria, an appraisal of international</p>



Step	Discussion
	<p>guidelines will be conducted to determine an appropriate screening value.</p> <p>Reditus did not consider an assessment of groundwater necessary due to the previous site uses, results of the previous soil investigation and nature of the contamination identified at the site (i.e. fragments of bonded asbestos sheeting and FA).</p>
Step 4: Define the boundaries	<p>The investigation boundary is restricted to the extents of the proposed development site boundary. The vertical extent of the study boundaries is limited to a maximum depth in which natural soils are encountered (as determined by suitably qualified professionals within the field).</p>
Step 5: Develop the analytical approach	<p>If the concentrations of COPCs in the soil are reported to be below the relevant adopted guidelines and validation criteria, then the soil will be deemed suitable for the proposed development and no further management/remediation will be required.</p> <p>If, however, the concentration of one or more COPCs are greater than the guidelines and/or validation criteria, then further investigation will be required to laterally and vertically delineate the extent of the impact and/or recommendations made for further remediation/management of contamination to render the site suitable for the proposed use.</p>
Step 6: Specify performance or acceptance criteria	<p>The acceptable limits for samples are as follows:</p> <ul style="list-style-type: none"> ▪ % RPD for laboratory duplicates for TPH and BTEX analysis is less than 60%; and ▪ Recovery of matrix spikes and surrogate spikes is as per the laboratory's Quality Assurance targets accepted under their National Association of Testing Authorities (NATA) accreditation. <p>Precision is measured using the standard deviation 'SD' or Relative Percent Difference '%RPD'. Replicate data for field duplicates of organics is expected to be as follows:</p> <ul style="list-style-type: none"> ▪ RPD criteria of 50% or less, for concentrations > or = 10 times practical quantitation limits (PQL); ▪ RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and ▪ RPD criteria of 100% or less, for concentrations < 5 times PQL. <p>Replicate data for field duplicates for inorganics, including metals is expected to be as follows:</p> <ul style="list-style-type: none"> ▪ RPD criteria of 30% or less, for concentrations > or = 10 times PQL; ▪ RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and ▪ RPD criteria of 100% or less, for concentrations < 5 times PQL. <p>Where acceptable limits for field duplicates were not met, a discussion on low biased error will be provided.</p> <p>For this investigation, a decision error of 5% will be considered acceptable This error rate is in accordance with Appendix B of Schedule B(2) of the NEPC (2013) NEPM. In order to achieve this level of confidence, the investigation has been designed as described below.</p>



Step	Discussion
Step 7: Optimise the design	Soil samples will be collected at relevant densities as specified in this RAP, changes in geology or in zones of gross contamination and locations selected for efficient and representative sampling. All media sampled will be conducted in accordance with Reditus standard operating procedures (SOPs) and relevant industry guidelines.



7. Remediation Acceptance Criteria

The tier 1 assessment criteria are adopted from:

- National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended in 2013'.

The remediation acceptance criteria adopted for soil validation works were based on the most sensitive low density residential land use included for the proposed redevelopment:

- It is understood the site is to be redeveloped with limited unsealed areas and will include predominantly concrete hard stand cover with minimal access to soils, as well as peripheral landscaped gardens AND chemical COPC are not considered to preclude the proposed development, therefore the EILs and ESLs have **not been** considered applicable for the future use.
- The assessment criteria for asbestos will be adopted from NEPC (2013) NEPM, which provides health screening levels for asbestos contamination in soil, which are based on specific land use exposure scenarios, for three forms of asbestos: bonded asbestos containing material (ACM), friable asbestos (FA) and asbestos fines (AF). The laboratory method for analysis of asbestos in bulk materials is based on AS 4964&2004. Consequently, a practical quantification limit (PQL) equal to or less than 0.001% by weight is not adopted and the limit is 0.1g/kg (equivalent to 0.01% w/w). by weight is not possible and the limit is 0.1g/kg (equivalent to 0.01% w/w). The laboratory however will report asbestos results to both the NATA accredited PQL and lower 0.001% by weight NEMP (2013) quantification.
- In addition to the laboratory results, a criteria of "no visible asbestos containing materials in soils sampled" has been adopted. The health screening level for low-high density residential sites has been adopted for this assessment.

Table 7-1: Remediation Acceptance Criteria

Group	Analyte	Remediation Acceptance Criteria
Asbestos	Visible	No visible ACM in top 100 mm finished surface
	Bonded (>7mm)	Health Screening Level A < 0.01 %w/w
	Friable (AF/FA)	Health Screening Level A < 0.001%w/w
Aesthetics	Anthropogenic inclusions, staining, odour.	Ground surface and top 300 mm of final surface free from significant building rubble, staining, discolouration, and malodorous odours.

Aesthetics relates to the generation of odours from the site, discolouration of the soil as a result of contamination and building and demolition wastes. Aesthetic issues will need to be considered as part of the site's final construction surface.



8. Remediation Strategy

8.1. Remediation Objectives

The objective of the RAP is to provide a detailed plan of activities, procedures, contingency measures and objectives to ensure the effective and controlled remediation of the site for the proposed mixed use commercial development. It describes the procedures and standards to be followed throughout the project to facilitate successful remediation / management of the site and ensure protection of human health and the environment.

The areas of known contamination warranting remediation have been detailed in **Table 5-1** within this RAP.

The remediation objectives are outlined as follows:

- Remediate the site to a level to facilitate the future land use with consideration to the most sensitive receptor within the proposed development being a childcare centre.
- Prevent or minimise to the extent practicable further migration of contaminants from source areas that pose an unacceptable risk to either future site occupants or environmental receptors.
- Validate the soil remedial/assessment works by demonstrating the impacted fill material has been adequately removed or managed.
- Validate the remedial works in accordance with the relevant NSW EPA endorsed guidelines.

8.2. Remediation Options Appraisal

The Contaminated Sites Guidelines for the NSW EPA endorsed NSW Auditor Guidelines 3rd Edition (NSW EPA 2017) states that a site auditor must be satisfied that any proposed or completed remediation is technically feasible, environmentally justifiable and consistent with relevant laws, policies and guidelines. The Auditor Guidelines (NSW EPA 2017) state the Auditors must have regards to:

- National, and relevant NSW EPA endorsed remediation policies.
- The Protection of the Environment Operations Act 1997 (POEO Act) and Regulations for soils to be disposed of in NSW.
- Other legislation such as the Environmentally Hazardous Chemicals Act 1985 (EHC Act) and the Environmental Planning and Assessment Act.
- Relevant technical guidance documents issued by the NSW EPA.

In addition, the guidelines state the preferred hierarchy of options for site remediation and/or management is set out in s.6(16) Assessment of Site Contamination Policy Framework of Schedules A and B of the NEPM (2013), which is followed in NSW.

This means that soil remediation and management is implemented in the following preferred order:



- On-site treatment of the soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level.
- Off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site.
- Consolidation and isolation of the soil on-site by containment within a properly designed barrier.
- Removal of contaminated soil to an approved site or facility, followed, where necessary, by replacement with clean fill; or
- Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

An appraisal of viable remediation options for the “known contamination: that may be practically implemented at the site” are presented in **Table 8-1** below.

Table 8-1: Remediation Options Appraisal

Option	Discussion	Conclusion
Option 1 Excavation and removal of the impacted fill soils	There are currently suitably licensed waste facilities in NSW capable of receiving the impacted soils (following further assessment and waste classification). Offsite disposal of impacted material is one of the fastest ways of remediating soils impacted at the site.	Preferable (TP15 location) Suitable for small volumes of impacted soil. This option ensures the removal of “known” asbestos in soil impacts. This option would be revised if larger volumes of asbestos impacted fill were observed during bulk earthworks.
Option 2 Onsite treatment	Onsite treatment involving raking, tilling and sparrow picking ACMs. This option is cost effective and straightforward but would not be suitable to be implemented at TP15 as FA was identified at this location.	Preferable (TP02, TP04 and TP19 locations) This option is deemed suitable for TP02, TP04 and TP19 locations as only bonded ACM fragments considered minor in quantity were identified.
Option 3 Do nothing	To leave the site as it is currently would not be feasible as the material requires excavation to facilitate levels for the development and will require excavation/validation.	Not Permitted Not a suitable option as this still presents an unacceptable risk to potential on-site human receptors.



Option	Discussion	Conclusion
<p>Option 4 'Cap and contain' the impacted fill</p>	<p>It is understood the site does not require significant excavation (cutting) to enable the proposed development.</p> <p>This option eliminates the cost implications and need to dispose to landfill.</p> <p>This option does not "remove" the contamination and may require implementation of a long-term environmental management plan.</p>	<p>Contingency Preference.</p> <p>This option is deemed suitable if ACM soils volumes increase to a level that cause removal offsite to become un-feasible.</p> <p>This option would potentially require ongoing management of the material under a constructed cap and Long-Term EMP.</p> <p>If volume of ACM impacted soils remain low then, ongoing management implications during the construction stage might not be cost effective compared to offsite disposal of small volumes to landfill and validation of the site prior to construction works beginning.</p> <p>If asbestos impacts are discovered to be wide spread and impacted significant soil volumes >500m³ then this option will be considered and may be implemented onsite.</p>

8.2.1. Preferred Remediation Option

With consideration to NSW EPA's endorsed guideline hierarchies for soil remediation options and clean-up objectives, the analytical data obtained from current site investigations and the proposed development and environmental setting, the preferred remediation strategy is a combination of Options 1 & 2, including the off-site disposal of the TP15 "hotspot" and onsite treatment of the TP02, TP04 and TP19 "hotspots". A contingency measure of Option 4 is noted as a possibility following removal of the thick site vegetation.

It is noted that a visual clearance and inspection of the site surface upon the completion of vegetation removal is also required to confirm that no visible asbestos is present across the site surface.

8.3. Required Remediation Works

Remediation will be undertaken in four (4) designated area within the development footprint, as illustrated in **Figure 3, Appendix A**. The areas of known contamination and remediation approach is summarised in **Table 8-2** below.



Table 8-2: Remediation Works Description

Contaminant	Inferred Extent	Remediation Approach
Asbestos in soil – Fibrous Asbestos (FA)	Location: TP15 Area: 4x4 m (16 m ²) Depth: 0.4 m (depth of fill soils) Approx. volume: 6.4 m ³	<ul style="list-style-type: none"> ▪ The impacted soils will require further assessment prior to or following excavation to re-assess the waste classification of the material. ▪ Validate the excavation footprint to confirm hotspot has been removed. ▪ Dispose excavated material to suitably licensed landfill. ▪ Reinstate excavation and/or make safe excavation prior to bulk site works.
Asbestos in soil – Bonded ACM	Location: TP02, TP04 and TP19 Area: 4x4 m (16 m ²) Depth: 0.1 m	<ul style="list-style-type: none"> ▪ Removal of vegetation and any surface ACM identified prior to beginning tilling works at each “hotspot” location. ▪ Rake and tilling of the top 10cm of the ground surface using a mechanical excavator and toothed bucket including two-directional passes at 90°. ▪ Sparrow picking of any ACM fragments identified. ▪ Upon completion of the tilling and sparrow picking works the readily disturbed and accessible ground surface (top 10cm of soil) must be free of visible asbestos for the hotspot areas to be considered remediated and validated.
Visible asbestos – Site Surface	Location: Extent of site surface upon completion of the overgrown vegetation removal	<ul style="list-style-type: none"> ▪ Removal of overgrown vegetation across the site surface. ▪ Visual inspection and sparrow picking of any ACM identified. ▪ If quantities of ACM considered greater than minor encountered, adoption of surface tilling approach outlined above. ▪ The site ground surface must be free of visible asbestos to be considered remediated and validated.



9. Validation Plan

9.1. Visual Inspection

Following excavation and removal of the impacted soils requiring remediation at TP15 “hotspot” location a visual inspection of the excavation surface is to be completed by SafeWork NSW Licensed Asbestos Assessor (LAA) to confirm no visible ACM is present within the top 100 mm of the residual soil surface from the walls and base of the excavation prior to validation sample collection.

Following surface tilling and sparrow picking works at TP02, TP04 and TP19 “hotspot” locations a visual inspection of the readily disturbed and accessible ground surface is to be completed by SafeWork NSW LAA to confirm no visible ACM is present within the top 100 mm of the residual soil surface.

Following vegetation removal across the site surface a visual inspection of the ground surface is to be completed by SafeWork NSW Licensed Asbestos Assessor (LAA) to confirm no visible ACM is present within the top 100 mm of the residual soil surface.

9.2. Validation Sampling and Analysis

Validation of the excavation extent at the TP15 hotspot will be based on visual observations and sample and analysis as outlined in **Table 9-1**.

If the samples collected from the base and walls of the excavation meet validation criteria the material will be considered validated. If they do not meet validation criteria additional excavation of the impacted fill material will be undertaken until sample results meet the adopted site criteria.

9.3. Soil Sampling Methodology

All validation samples will be collected by an appropriately trained and experienced environmental professional. Samples will be collected in a method which prevents cross contamination and enhances the integrity of the process. These processes are discussed briefly below.

All soil samples will be collected directly from the excavator bucket, stockpile or ground surface by hand whilst using nitrile gloves which were replaced between each sample. Part of each soil sample to be placed into snap lock plastic bag for screening with a photo-ionisation detector (PID), and the remaining part being placed directly into a laboratory prepared 250 mL glass jar or specific container with the details of the sample, including the sample name, the job number, the date of sample and the sample depth.

Sample preservation to be undertaken in accordance with NEPC (2013) NEPM, with samples immediately placed and stored in an ice filled esky to keep them chilled (excluding asbestos samples), prior to being couriered to the laboratory under a signed chain of custody (COC) form filled out with the required analysis.

500mL soil samples are to be placed into snap lock plastic bag (double bagged), with the details of the sample, including the sample name, the job number, the date of



sample and the sample depth, for laboratory analysis of AF and FA asbestos in accordance with the NEPC (2013) NEPM.

10L field screening soil samples are to be collected from a representative depth interval. All samples will be individually screened manually through a 7 x 7 mm sieve or spread over a contrast surface (i.e. tarp) and inspected if unable to be sieved. Any ACM or FA identified is to be collected, bagged and submitted to the laboratory for asbestos identification and weight of asbestos fragments collected.

Percentage soil asbestos from collected ACM then calculated as follows:

$$\% \text{Soil Asbestos} = \frac{\% \text{Asbestos Content} \times \text{ACM (kg)}}{\text{Soil Volume (L)} \times \text{Soil Density (kg/L)}}$$

9.4. Soil Laboratory Analyses

NATA accredited labs are to be used for all laboratory analyses for soil. Any method not NATA accredited will require justification.

Laboratory analysis of samples will be conducted with reference to known or anticipated COPCs. The proposed soil validation sampling and analytical program is outlined in **Table 9-1** below.

Table 9-1: Soil Validation Sampling and Analytical Program

Item	Sample Frequency	Analytes	Number of Proposed Sample Locations
Excavation Extent of TP15 Hotspot Removal	Base samples to be collected at a frequency of one (1) sample per 5m ² of the excavation surface. Wall samples to be collected at a frequency of one (1) sample per 10 lineal metres (or 1 per wall).	Asbestos (NEPM) 500 mL asbestos quantification in soil (%w/w) 10L asbestos in soil field screening (fill soils only)	The number of samples will depend on the final extent of excavation area. 10L field screening samples will only be required where fill materials remain on the walls and/or base of the excavation.
Stockpiled soil arising from hotspot excavations (Waste Classification)	Samples to be collected at a frequency of 1/25m ³ (minimum three samples).	TRH, BTEX, PAH, heavy metals, PFAS (short suite), toxicity characteristic leaching procedure (TCLP) (as required)	Dependent upon volume of material excavated.
Imported VENM material (if required)	One sample per 250m ³ minimum of three samples per source site.	TRH, BTEX, PAH, heavy metals, OCP, OPP, PCB, asbestos (NEPM)	It is unlikely that any fill material will be imported to site. Scope provided for contingency.
Unexpected Finds	To be confirmed by a suitably qualified environmental consultant following the inspection and appropriate characterisation of the contamination.		



9.5. Quality Assurance/Quality Control

The QA/QC program for the site should comprised the following elements:

- Field Duplicate Samples (chemical analytes only): one field duplicate sample to be collected for every 20 primary samples collected (or part thereof). Duplicate samples are to be sent to the primary analytical laboratory to check the accuracy of the analytical results.
- Field Triplicate Samples (chemical analytes only): one field triplicate sample to be collected for every 20 primary samples collected (or part thereof). Triplicate samples are sent to be sent to a secondary analytical laboratory to check the accuracy of the analytical results.
- Rinsate Blank: A rinsate blank to be collected during each sampling event. Rinsate blanks are to be collected from rinsing field sampling equipment to assess the effectiveness of the decontamination procedures between sampling locations.
- Trip spike: A triplicate spike to be prepared by the NATA accredited laboratory during each soil or groundwater monitoring event for volatile contaminants.
- A Trip Blank: A triplicate blank to be prepare by the NATA accredited laboratory with deionised to determine the potential for cross contamination.

9.6. Validation Reporting

A Site Validation Report must be prepared verifying that the site is suitable for the proposed development in general accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Land, documenting the works as completed. This report will contain information including:

- Details of the remediation works conducted.
- Information demonstrating that the objectives of the RAP have been achieved, the sample results of any waste classification, imported material, any waste dockets along with assessment of the data against both the pre-defined data quality objectives and the remediation acceptance criteria.
- Information demonstrating compliance with appropriate regulations and guidelines.
- Any variations to the strategy undertaken during the implementation of the remedial work.
- Details of any environmental incidents occurring during the remedial works and the actions undertaken in response to these incidents.
- Details of any unexpected finds including the additional and remedial works required to appropriately manage the finds.
- Other information as appropriate, including requirements (if any) for ongoing monitoring / management.

The report will serve to document the remediation works for future reference.



The following records will be maintained by the civil contractor during remediation work and will be made available for inclusion into the Validation Report:

- Any complaints made towards the remedial works, the date and time that the complaint was made, and corrective actions taken.
- Records of approvals to remove or dispose soil from the site.
- Suspicious soil material encountered in the materials brought onto site.
- Source of material being brought onto site for the sub-grade layer or for backfilling.
- Dockets for the quantities of material being brought onto site as well as the EPA approvals.
- Any amendments to works which deviate from this RAP, EPA comments to these amendments, as well as any comments and/or endorsements.
- Photographic records of the stockpiled materials as well as stockpile management, and site establishment.

All works will be reported within the site validation plan, however if further investigation uncovers additional contamination the RAP will need to be revised.

Materials imported and exported from the site will be tracked and documented as follows:

- **Material leaving the site:** Include records of disposal dockets, disposal dates and quantity/volume for each material type and provide a tally of total volume/quantity (by waste classification type) against the disposal dockets.
- **Material imported to the site (prior to validation):** Include records of quantity/volume of material imported to the site by type, analytical test results of imported material and the associated material certification (a simple material certification will not be adequate).



10. Remediation Schedule

The remediation schedule is expected to occur as follows in sequential order:

Prior to any ground disturbance works occurring. A suitably licenced (Class A) asbestos removal contractor is to be engaged and prepare and Asbestos Removal Control Plan (ARCP) for review by the LAA and client. The Class A contractor is to ensure all necessary approvals and notifications are made to NSW SafeWork prior to asbestos removal works commencing.

Vegetation Removal and Surface Clearance

1. De-grubbing or slashing of overgrown vegetation across the extent of the site.
2. Inspection and sparrow picking of the exposed ground surface for any potential ACM. Record the GPS locations of all ACM found at the site.
3. Issuance of a clearance certificate for the top 100 mm in all areas visual validated as free of ACM.
4. If quantities considered greater than minor occurrences of ACM, the "Bonded ACM" remediation schedule as detailed below will be adopted for all areas of the site where applicable.

Asbestos in Soil – Bonded ACM (Reditus TP02, TP04, TP19)

5. Removal of any surface ACM identified prior to beginning tilling works at each "hotspot" location.
6. Tilling of the top 10cm of the ground surface using a mechanical excavator and toothed bucket including two-directional passes at 90°.
7. Sparrow picking of any ACM fragments identified.
8. Upon completion of the tilling and sparrow picking works the readily disturbed and accessible ground surface (top 10cm of soil) must be free of visible asbestos for the hotspot areas to be considered remediated and validated.
9. Visual validation of the readily disturbed and accessible ground surface (top 10cm of soil) by a LAA or suitably qualified and experienced environmental consultant.
10. Issuance of a clearance certificate for the top 100 mm in all areas visual validated as free of ACM.

Asbestos in Soil – Fibrous Asbestos (Reditus TP15)

11. Excavation of TP15 "hotspot" and temporary stockpiling on a plastic or geotextile layer to avoid contact with the residual ground surface. Stockpile/s are to be covered and pinned down (contained) following completion of excavation works or upon completion of daily works (as a minimum).
12. Validation and visual clearance of the resultant excavation in accordance with **Table 9-1** by a SafeWork NSW LAA.
13. Collection of additional samples from the stockpile to confirm waste classification.
14. Removal of contaminated soil to an approved site or facility.



15. Issuance of a clearance certificate for the TP15 excavation validated as free of asbestos containing material (ACM).

16. Replacement of the excavation with site won or imported material (if required).

17. PREPARATION OF SITE VALIDATION REPORT.

11. Contingency Plan

A review of remediation works has been undertaken to identify potential risks to meeting the specified site validation criteria. Several potential risks have been identified. These potential scenarios and associated contingencies will be implemented to ensure that validation criteria are met.

11.1. Onsite Buildings

Asbestos was positively identified during the Reditus (2022) DD/ESA in material samples collected from the residential building eaves, sub-floor space soil surface and storage shed/building at the site.

Demolition of these buildings must be undertaken in accordance with guidelines relating to buildings containing ACM and all ACM must be removed from site properly to ensure the building footprint and surrounding area is not impacted and contaminated with ACM debris from the demolition works undertaken.

11.2. Unexpected Finds

The possibility exists for undiscovered hazards to be present at the site.

Environmental sampling is based on identification of potential chemical analytes that have been identified during a documented process of reviewing historical site activities and previous investigation results. Ground conditions however between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations. The nature of any undiscovered hazards which may be present at the site are generally detectable through visual or olfactory means, for example:

- Petroleum contaminated soils (staining / discoloration visible).
- Hydrocarbon Organic Compound contaminated soils (odorous).
- Fragments of asbestos-containing materials (visible).
- Significant ash and/or slag contaminated soils / fill materials (visible).
- USTs that have not been previously identified.

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any unexpected potentially hazardous substance be encountered the works should cease immediately before being assessed by a suitably qualified and experienced environmental professional.

Should material be encountered that is suspected of containing ACM, the following actions are to be undertaken:



- Material that is suspected of containing asbestos must be isolated and the area barricaded to prevent the possible exposure of workers to asbestos. Signs notifying site workers of the presence of asbestos must be placed on the barricades.
- All suspicious material must be assumed to contain asbestos until it has been proven otherwise by laboratory analysis.
- All suspicious material and other unexpected finds are to be logged on the Unexpected Finds Register.

The sampling strategy for each "unexpected find" shall be designed by a suitably qualified and experienced environmental professional. The strategy will, however, be aimed at determining the nature of the substance - that is, is it hazardous and, if so, at concentrations which pose an unacceptable risk to human health or the environment.

Remediation of any unexpected finds will be conducted in accordance with the applicable requirements.

11.3. Remediation Strategy Unsuccessful

Should validation be deemed not suitable for the sites intended land use, then a site-specific risk assessment will be conducted. If the site-specific risk assessment indicates the site is unsuitable then the contingency method of cap and contain will be implemented. If this occurs an addendum to the RAP should be prepared detailing the revised remedial strategy and requirements for the legally enforceable long term management of the containment strategy.



12. Construction Management Plan

It is likely the development consent will require a Construction Management Plan (CMP) to be prepared and submitted to Council for approval prior to commencement.

Reditus recommend the appointed contractor refers to the NSW Department of Infrastructure, Planning and Natural Resources (DIPNR) Guideline for the Preparation of Environmental Management Plans 2004.

The CMP will be the overarching document that for the implementation of environmental control measures during construction. The controls prescribed within this RAP are to be adopted within the CMP and administered by the appointed Principal Contractor.



13. Asbestos Management Plan

All soil disturbance works are to be undertaken under the direction of an Asbestos Management Plan (AMP) to be prepared prior to disturbing asbestos in soil.

The licenced (Class A) asbestos removal contractor is required to prepare an Asbestos Removal Control Plan (ARCP) for review by the LAA and client. The Class A contractor is to ensure all necessary approvals and notifications are made to NSW SafeWork prior to asbestos removal works commencing and should be consistent with the AMP.

The AMP will provide a detailed plan of activities to assist the appointed contractor and any sub-contractors with the management of known and any further unknown occurrences of ACM.

The AMP will be prepared in accordance with the WHS Act 2011, WHS Regulation 2017, SafeWork NSW Codes of Practice and industry guidance (as applicable).



14. Conclusions

It is considered that the objectives of the onsite remediation will be achieved subject to the successful implementation of the actions contained in this RAP.

This RAP has been prepared with consideration to available information, existing reports (Reditus 2022), development consent conditions and applicable regulatory provisions. The remediation strategy has been based on the documented site condition, which has been adequately characterised by previous investigations and considers asbestos in soil as the primary contaminants of concern warranting remediation.

Appropriate contingencies and controls have been made to accommodate data gaps and unexpected finds during the remediation phase. Validation will be subject to successful implementation of the AMP and for the project and requirements prescribed within **Section 8 and Section 9**.

The RAP includes suitable design and strategy for off-site disposal of contamination to reduce the risk of exposure to future site users and an appropriate contingency plan if asbestos is present more widely across the site. The proposed remediation is considered appropriate to render the site suitable for the proposed commercial land uses permissible within the zone, including restaurants, indoor recreation facility (gym), garden centre and a childcare centre

These conclusions are made with the limitations attached to this report.



15. Limitations

This report has been prepared in accordance with the scope of services described in the Section 1.2. The report has been prepared for the sole use of the client and has been prepared in accordance with a scope of work agreed by the client.

The report or document does not purport to provide legal advice and any conclusions or recommendations made should not be relied upon as a substitute for such advice.

The report does not constitute a recommendation by Reditus for the client or any other party to engage in any commercial or financial transaction and any decision by the client or other party to engage in such activities is strictly a matter for the client.

The report relies upon data, surveys, measurements and results taken at or under the site at particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the client. Furthermore, the report has been prepared solely for use by the client and Reditus accepts no responsibility for its use by other parties. The client agrees that Reditus' report or associated correspondence will not be used or reproduced in full or in part for promotional purposes and cannot be used or relied upon by any other individual, party, group or company in any prospectus or offering. Any individual, party, group or company seeking to rely this report cannot do so and should seek their own independent advice.

No warranties, express or implied, are made. Subject to the scope of work undertaken, Reditus assessment is limited strictly to identifying typical environmental conditions associated with the subject property based on the scope of work and testing undertaken and does not include and evaluation of the structural conditions of any buildings on the subject property or any other issues that relate to the operation of the site and operational compliance of the site with state or federal laws, guidelines, standards or other industry recommendations or best practice. Scope of work undertaken for assessments are agreed in advance with the client and may not necessarily comply with state or federal laws or industry guidelines for the type of assessment conducted.

Additionally, unless otherwise stated Reditus did not conduct soil, air or wastewater analyses including asbestos or perform contaminated sampling of any kind. Nor did Reditus investigate any waste material from the property that may have been disposed offsite or undertake and assessment or review of related site waste management practices.

The results of this assessment are based upon (if undertaken as part of the scope work) a site inspection conducted by Reditus personnel and/or information from interviews with people who have knowledge of site conditions and/or information provided by regulatory agencies. All conclusions and recommendations regarding the property are the professional opinions of the Reditus personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project/assessment.



Reditus is not engaged in environmental auditing and/or reporting of any kind for the purpose of advertising sales promoting, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project.

In relation the conduct of Asbestos inspections or the preparation of hazardous materials reports Reditus has conducted inspections and the identification of hazardous material within the constraints presented by the property. Whilst efforts are made to access areas not normally accessed during normal use of the site to identify the presence of asbestos or other hazardous material, unless explicitly tested no guarantee can be provided that such material is or is not present.

Reditus' 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 or reports reviewed. It is possible that additional testing and analysis might produce different results and/or different opinions or other opinions. Reditus has limited its investigation(s) to the scope agreed upon with its client. Reditus believes that its opinions are reasonably supported by the testing and analysis that has been undertaken (if any), and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. Other opinions and interpretations may be possible. 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.



References

NEPC, 2013 National Environmental Protection (Assessment of Site Contamination) Measure (NEPM). Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater, 2013.

NSW EPA (1995) Sampling Design Guidelines.

NSW EPA (2020) Contaminated Sites: Consultants Reporting on Contaminated Land.

Western Australia Department of Health (2021) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.



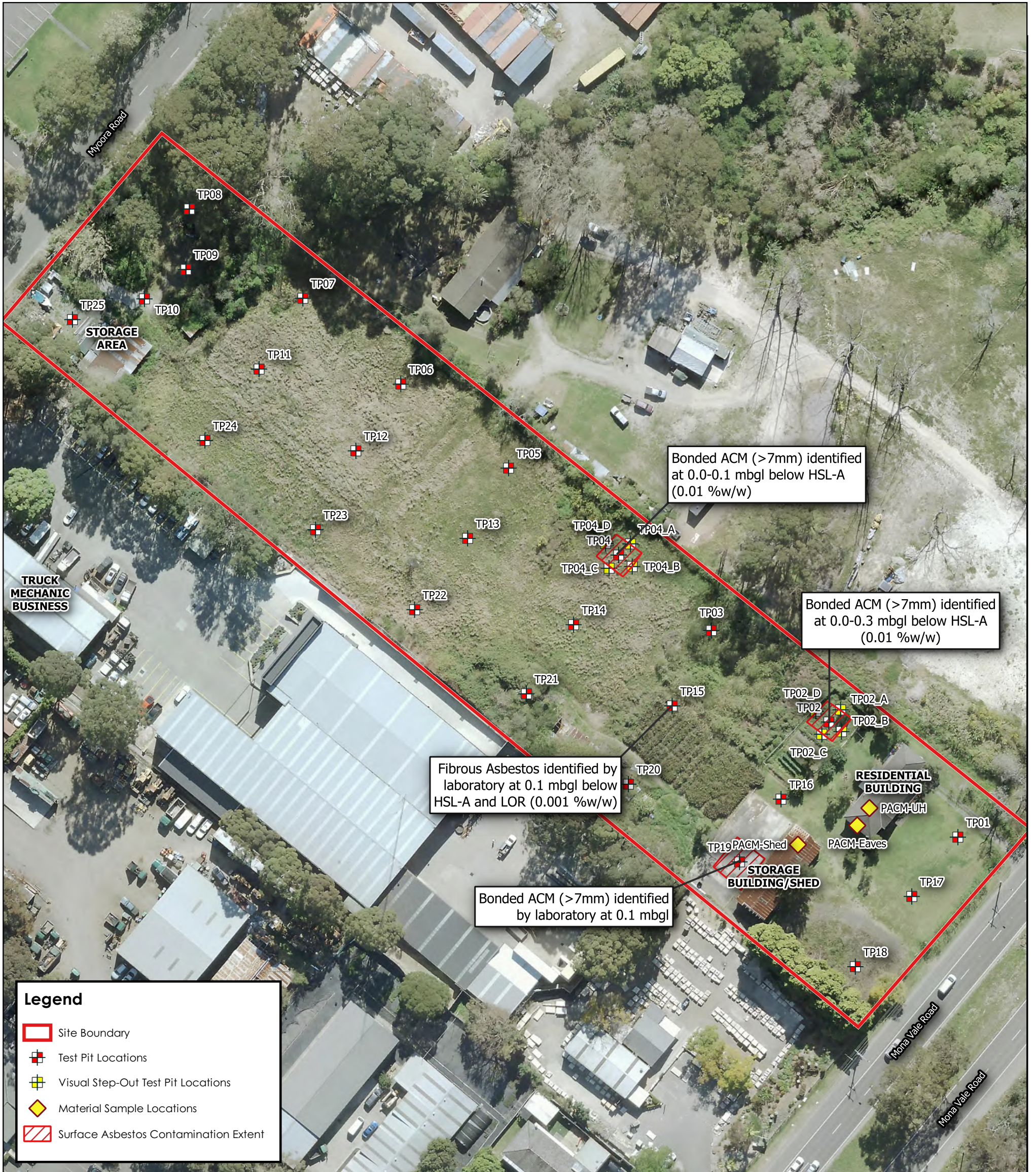
Appendix A - Figures



Map 21385_rp02_f01_siteloc_v01	
Date of Export 15/02/2022	
Author MB	Approver DJ
Data Source Metromap, Google Maps, Open Street Map, NSW Government	

Legend	
Site Boundary	Rivers
	Streams
	Minor Channels

Figure 1 - Site Location
 40 Myoora Road, Terrey Hills, NSW
 21385 - Remediation Action Plan
 Isaac Property



Map 21385_rp02_f02_samplelocs_v01	Author MB
Date of Export 15/02/2022	Approver DJ
Data source Metromap, Google Maps, Open Street Map	
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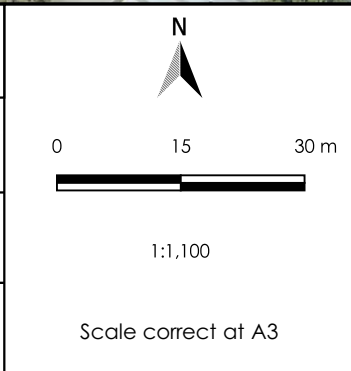
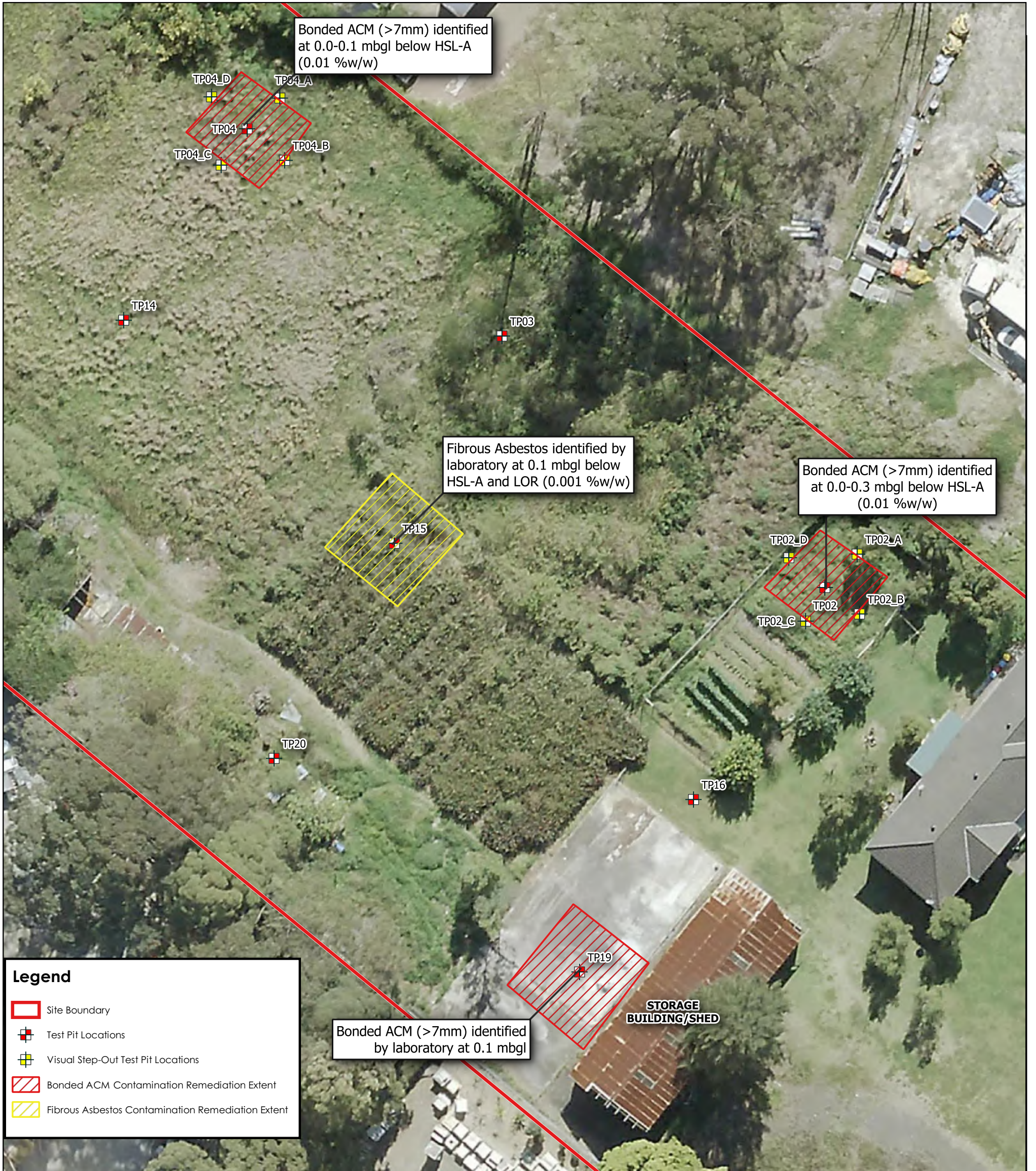


Figure 2 - Site Layout & Sample Locations
 40 Myoora Road, Terrey Hills, NSW
 21385 - Remediation Action Plan
 Isaac Property



Legend

- Site Boundary
- + Test Pit Locations
- + Visual Step-Out Test Pit Locations
- Bonded ACM Contamination Remediation Extent
- Fibrous Asbestos Contamination Remediation Extent

Map	21385_rp02_f03_remext_v01	Author	MB
Date of Export	15/02/2022	Approver	DJ
Data source	Metromap, Google Maps, Open Street Map		
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Scale correct at A3

Figure 3 - Remediation Extent

40 Myoora Road, Terrey Hills, NSW

21385 - Remediation Action Plan

Isaac Property