
Remediation Action Plan

2-4 Brownlee Street,
Ourimbah NSW

NEW23P-0208-AE
5 November 2024



Document control record

Document prepared for:

Central Coast Industry Connect Pty Ltd
Business Incubator, Loop Road
Ourimbah NSW 2258

Document prepared by:

Qualtest Laboratory (NSW) Pty Ltd
ABN 98 153 268 896
2 Murray Dwyer Circuit
Mayfield West NSW 2304

T 02 4968 4468

W www.qualtest.com.au

Document Control					
Report Title		Remediation Action Plan			
Document ID		NEW23P-0208-AE			
Project		Proposed Food Manufacturing Hub 2-4 Brownlee Street, Ourimbah NSW			
Rev	Date	Revision details/status	Prepared by	Author	Reviewed
0	5/11/2024	Original	Qualtest	T. Hall	E. Coleman

Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) were engaged by Central Coast Industry Connect Limited (CCIC) to prepare a Remediation Action Plan (RAP) for the site located at 2-4 Brownlee Street, Ourimbah NSW (the site).

The site is approximately 1.8 ha and comprised Lot 3 DP612071 and part Lot 42 DP1237817, within the Central Coast Council. The site is currently zoned E4 General Industrial and C2 Environmental Conservation along Bangalow Creek. The site is proposed to be developed into a Food Manufacturing Hub with associated roads and services in the northern portion of the site. Portions of the site will be retained as riparian zone and/or vegetated landscape. No development or vegetation clearing is proposed in these areas, other than weed management under a Vegetation Management Plan (VMP).

Previous assessments have been completed for the site by Qualtest:

- Qualtest (2023) Preliminary Site Investigation (PSI) (ref: NEW23P-0208-AA, dated 24 November 2023).
- Qualtest (2024) Detailed Site Investigation (DSI) (ref: NEW23P-0246-Abv2, dated 1 November 2024).

The DSI identified contamination in the form of bonded Asbestos Containing Materials (ACM) on the site surface in sample location TP101 0.0-0.1, located in the former office area (central western portion) of the site.

In order for the proposed development to proceed, the identified contamination will need to be either remediated and/or managed. This RAP outlines the remedial strategies to render the site suitable from a contaminated land perspective.

The objective of the RAP is to provide guidance on the remediation and management activities to be undertaken in order to ensure the site can be made suitable for the proposed Food Manufacturing Hub.

The proposed remediation method is removal of bonded ACM fragments to an extent where it meets the adopted Human Health Screening Level (HSL), and no asbestos is visible on the site surface (top 10cm), and disposal to an appropriately licensed waste facility, followed by validation.

Implementation of the RAP by appropriately qualified contractor and environmental consultant, who would conform to the strategies and procedures outlined in this RAP, would mitigate the potential risk of environmental impacts (from contaminated soil) during remediation and bulk earthworks.

Conformance with the remediation, material tracking and validation procedures would enable an appropriate validation assessment and Validation Report to be completed, to demonstrate that the site is suitable for the proposed development.

Based on the above, it is considered that appropriate implementation of the RAP would achieve the objective of rendering the site suitable for the proposed development.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, NEPC 2013, Canberra (referred to as ASC NEPM 2013). The report comprises a RAP in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 4 Stage 3 assessment.

Table of Contents:

Table of Contents:	i
1.0 Introduction	3
1.1 General	3
1.2 Objectives	3
1.3 RAP Requirements	3
1.4 Regulatory Control and Relevant Guidelines	4
2.0 Roles and Responsibilities	4
3.0 Site Description	5
3.1 Site Identification	5
3.2 Proposed Development	6
3.2 Topography and Drainage	6
3.3 Regional Geology and Soils	7
3.4 Hydrogeology	7
3.5 Acid Sulfate Soils	8
4.0 Summary of Previous Assessments	8
4.1 Qualtest (2023) Preliminary Site Investigation	8
4.2 Qualtest (2024) Detailed Site Investigation	9
5.0 Conceptual Site Model	10
5.1 Contamination Requiring Remediation	12
6.0 Remediation Program	12
6.1 Remediation Hierarchy	12
6.2 Remediation Options	12
6.3 Preferred Remedial Strategy	15
6.4 Contingency Remedial Strategies	15
6.5 Proposed Remediation Plan	15
7.0 Validation Program and Reporting	16
7.1 Step 1 - State the Problem	16
7.2 Step 2 – Identify the Decisions/Goal of the Study	17
7.3 Step 3 - Identify the Information Inputs	17
7.4 Step 4 - Define the Boundaries of the Study	18
7.5 Step 5 - Develop an Analytical Approach	18
7.6 Step 6 - Specify Acceptable Limits on Decision Errors	18
7.7 Step 7 - Develop the Plan for Obtaining Data	19
7.8 Validation Reporting	21

8.0	Site Management Plan.....	21
8.1	Asbestos	21
8.2	Air Emissions and Odours.....	21
8.3	Dust	22
8.4	Noise Controls.....	22
8.5	Stormwater and Soil Management	22
8.6	Traffic	22
8.7	Working Hours	23
8.8	Access Restrictions	23
9.0	Occupational Health and Safety	23
10.0	Licenses and Approvals	23
11.0	Contact Details and Community Relations	23
11.1.	Contact Details	23
11.2.	Community Relations.....	24
12.0	Contingency Plan / Unexpected Finds	24
13.0	Conclusions.....	25
14.0	References	25

Attachments:

Appendix A - Figures: Figure 1 – Site Location Plan

Figure 2 – Site Features

Figure 3 - Sawmill Building Footprints Plan Overlaid on Google Earth Image

Figure 4A – Sample Plan – Northern Portion

Figure 4B – Sample Plan – Southern Portion

Figure 5 – Identified Contamination

Figure 5 – Expected Remediation Area

Proposed Development Plan

Appendix B: Unexpected Finds Procedure

Appendix C: ENM & VENM Checklists

1.0 Introduction

1.1 General

Qualtest Laboratory NSW Pty Ltd (Qualtest) were engaged by Central Coast Industry Connect Limited (CCIC) to prepare a Remediation Action Plan (RAP) for the site located at 2-4 Brownlee Street, Ourimbah NSW (the site). The location of the site is shown on Figure 1, Appendix A.

The site is approximately 1.8 ha and comprised Lot 3 DP612071 and part Lot 42 DP1237817, within the Central Coast Council. The site is currently zoned E4 General Industrial and C2 Environmental Conservation along Bangalow Creek. The site is proposed to be developed into a Food Manufacturing Hub with associated roads and services in the northern portion of the site. Portions of the site will be retained as riparian zone and/or vegetated landscape. No development or vegetation clearing is proposed in these areas, other than weed management under a Vegetation Management Plan (VMP). A copy of the proposed development plan is included in Appendix A.

Previous assessments have been completed on the site by Qualtest:

- Qualtest (2023) Preliminary Site Investigation (PSI) (ref: NEW23P-0208-AA, dated 24 November 2023).
- Qualtest (2024) Detailed Site Investigation (DSI) (ref: NEW23P-0246-Abv2, dated 1 November 2024).

The DSI identified contamination in the form of bonded Asbestos Containing Materials (ACM) on the site surface in sample location TP101 0.0-0.1, located in the former office area (central western portion) of the site. Further information on the previous assessments is provided in Section 4 below.

In order for the proposed development to proceed, the identified contamination will need to be either remediated and/or managed. This RAP outlines the remedial strategies to render the site suitable from a contaminated land perspective.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, NEPC 2013, Canberra (referred to as ASC NEPM 2013). The report comprises a RAP in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 4 Stage 3 assessment.

1.2 Objectives

The objective of the RAP is to provide guidance on the remediation and management activities to be undertaken in order to ensure the site can be made suitable for the proposed Food Manufacturing Hub.

1.3 RAP Requirements

The NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land provides requirements that are to be considered in the preparation of RAPs. As such, this document addresses the following requirements:

- Summary of site identification, site history, site condition and surrounding environment;
- Summary of previous contamination assessments;
- The contamination requiring remediation and/or management;

- Remediation objectives;
- Remediation criteria;
- Discussion of possible remediation options;
- Rationale for selecting the preferred remedial option;
- Validation programme and Sampling, Analysis and Quality Plan (SAQP);
- Contingency plans for unexpected finds; and
- Health, Safety, and Environmental requirements.

1.4 Regulatory Control and Relevant Guidelines

The RAP was prepared with reference to the following guidelines, regulations and legislation:

- NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013, National Environment Protection Council (ASC NEPM, 2013).
- NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.
- NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines.
- NSW EPA (2014) Waste Classification Guidelines.
- State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 4 under the Environmental Planning and Assessment Act 1979.
- NSW Department of Urban Affairs and Planning and NSW EPA (1998) Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land.
- Contaminated Land Management Act, 1997.
- Protection of the Environment Operations Regulation, 2014.
- Central Coast Local Environmental Plan 2022.

2.0 Roles and Responsibilities

Table 2.1 summarises the roles and responsibilities during remediation and validation.

Table 2.1: Role and Responsibilities

Role	Responsibilities
Project Manager – Central Coast Industry Connect Limited (CCIC)	- To engage suitably qualified personnel/companies to carry out the works. - To ensure the remediation work is undertaken in accordance with the RAP.

Role	Responsibilities
Contractor – TBA	- Only engaging suitably qualified and competent staff and contractors. - Enforcing the implementation of this plan on the site by staff, subcontractors and visitors. - Authorised to stop work as deemed necessary where unsafe activities are being carried out or where management plans are not being followed. - Overseeing the proper use and maintenance of site safety equipment, including staff Personal Protective Equipment (PPE) and first aid equipment.
Environmental Consultant – Qualtest	- To provide advice regarding the management of contaminated materials. - Authorised to stop work as deemed necessary where unsafe activities are being carried out or where management plans related to contamination are not being followed.
Site Workers	- Taking reasonable care for their own safety and the safety of others. - Following site rules and work instructions. - Taking immediate action to rectify hazards that may arise during the course of the work. - Complying with management plans, relevant OHS legislation and industry standards. - Establish and maintain a positive safety climate on the project.

3.0 Site Description

3.1 Site Identification

General site information is provided below in Table 3.1. The site location is shown in Figure 1, Appendix A.

Table 3.1: Summary of Site Details

Site Address:	2-4 Brownlee Street, Ourimbah NSW
Approximate site area and dimensions:	Approx. 1.8ha. Approx. 170m long (north-south) by 220m wide (east-west) at its widest and longest points. Development area is approx. 0.9ha. Approx. 100m long (north-south) by 125m wide (east-west) at its widest and longest points.
Title Identification Details:	Lot 3 DP612071 and part Lot 42 DP1237817, within the Central Coast local government area.
Current Zoning	E4 – General Industrial C2 – Environmental Conservation along Bangalow Creek

Current Ownership:	Central Coast Council
Current Occupier:	Central Coast Council
Previous and Current Landuse:	Sawmill Council depot Residential Bushland
Proposed Landuse:	Commercial/Industrial (food manufacturing hub) and bushland
Adjoining Site Uses:	North – Sports fields East – Bangalow Creek and vacant land South – Brownlee Street, and residential and commercial/industrial properties West – Brownlee Street, and rail corridor
Site Coordinates for approx. north-western corner of site:	33°21'24.68 S 151°22'13.04 E

3.2 Proposed Development

The site is an irregular shape, with a triangular shaped portion located to the north-west of Bangalow Creek, and a second triangular shape mostly located to the south-east of Bangalow Creek.

The northern portion of the site is proposed to be developed into a Food Manufacturing Hub with associated roads and services. Remaining areas of the site will be retained as a riparian zone and/or vegetated landscape. No development or vegetation clearing is proposed in these areas, other than weed management under a Vegetation Management Plan (VMP). These areas include:

- A 20m wide strip of land along the north-western side of Bangalow Creek;
- An approximately 650m² portion in the north-eastern corner of the site; and,
- An approximately 3,750m² portion in the south-eastern corner of the site.

A copy of the proposed development plan is included in Appendix A.

3.2 Topography and Drainage

Reference to the NSW Land and Property Information Spatial Information Exchange website (<https://six.nsw.gov.au/wps/portal/>) indicated the elevation of the site was approximately 20m AHD. A plan provided by Council indicates the site elevation ranges from 16m to 19m AHD.

During the site walkover, the site was observed to be generally level with the north-eastern portion slightly sloping towards the east-southeast, and the south-western portion sloping towards the north-northeast towards Bangalow Creek.

Rain falling on the site would be expected to infiltrate into surface soils, with excess surface water run-off entering stormwater systems along Brownlee Street, located along the western boundary of the site or Bangalow Creek which forms the eastern boundary of the northern

portion of the site, and the western boundary of the southern portion of the site. Bangalow Creek drains north and discharges to Ourimbah Creek about 3.3km north of the site.

3.3 Regional Geology and Soils

The Central Coast 1:100,000 coastal quaternary geological map (<https://minview.geoscience.nsw.gov.au/>) shows that the site is underlain by Quaternary floodplain: silt, clay, fluvial sand gravel.

3.4 Hydrogeology

Groundwater beneath the site is anticipated to be present in an unconfined and/or semi-confined aquifer in alluvial soils within 5m below ground surface (bgs). Groundwater flow direction is anticipated to follow the surface topography and flow towards Bangalow Creek which forms the eastern boundary of the northern portion of the site, and the western boundary of the southern portion of the site. Bangalow Creek drains north and discharges to Ourimbah Creek about 3.3km north of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were 13 bores within this radius. A copy of the search was provided in the PSI (Qualtest, 2023).

Table 2.5 – Groundwater Bore Search

Bore ID	Installation Date	Purpose	Approx. Distance, Direction and Gradient from Site	Final Depth (m)	Water Bearing Zones (m)	SWL
GW080803	17/11/2004	Town Water Supply	180m N, down-gradient	-	-	
GW200559	18/06/2004	Irrigation	130m S, up-gradient	80.00	44.00-48.00 51.00-59.00 65.00-69.00 71.00-76.00	6.10
GW200593 to GW200597	19/09/2001	Test Bore	230m to 250m S-SW, up to cross-gradient	6.00 to 7.00	-	-
GW200604 to GW200607	12 to 13/07/2006	Monitoring Bore	60m to 120m E and S-SE, up-gradient	6.10	-	3.10 to 3.80
GW200098	No work order summary report available					

3.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil online database from State of NSW and Department of Planning, Industry and Environment, 2021 (<https://espade.environment.nsw.gov.au>) indicates no data is available for the site. This usually indicates that the site is located in an area of no known occurrence of ASS.

Soils characteristic of ASS were encountered during investigations, and an ASS Management Plan (ASSMP) was prepared for the site, ref: NEW23P-0208-AD dated 3 July 2024.

4.0 Summary of Previous Assessments

A summary of the previous contamination assessments is provided below.

4.1 Qualtest (2023) Preliminary Site Investigation

Qualtest completed a Preliminary Site Investigation (PSI) on the site in November 2023 (ref: NEW23P-0208-AA, dated 24 November 2023). Relevant information available from the PSI (Qualtest, 2023) is summarised below.

The objectives of the PSI were to provide:

- An assessment of the likelihood for contamination to be present on the site from past uses and activities; and,
- Provide recommendations on the need for further assessment, management and/or remediation (if required).

In order to achieve the above objectives, Qualtest carried out the following scope:

- Desktop study and site history review;
- Site walkover; and
- Data assessment and preparation of a Preliminary Site Investigation Report.

The site history review showed the northern portion of the site (Lot 3) operated as a saw mill from at least 1905 (possibly early as 1898) to 1996. The southern portion of the site contained a residential dwelling since at least the 1960s. In 1984, Council purchased the southern portion (Lot 42) of the site, then later purchased the northern portion (Lot 3) in 1991. Council leased the site to others from 1991 to 1996, and it had not been used as a sawmill since that time. The northern portion of the site (Lot 3) appears to have been used as a recycling depot during that time, and potentially until the early 2000's. In 2017 the infrastructure associated with the saw mill was removed/demolished from site, leaving mostly vacant bushland.

The southern portion of the site (Lot 42) appeared to be used for residential purposes from at least the 1960s until 2019 when it became vacant. Waste materials (corrugated PACM sheeting, general rubbish/waste) were stored under and around the residential dwelling. Anecdotal information indicated that in recent years, Council used Lot 42 for the storage of equipment/machinery and stockpiling materials. A photograph from 2022 showed materials/waste scattered around the shed, however these had been removed by 2023. A fill area (~760m²) was observed south to south east of the dwelling, with anthropogenic waste materials embedded within surface soils.

Figures 2 and 3, Appendix A show the site features in 2023, and the former sawmill layout.

Four areas of Environmental Concern (AECs) were identified based on the site history and site observations. The AECs related to: 1. Former sawmill and recycling depot; 2. Former use of Lot 42 as Council depot; 3. Abandoned dwelling on Lot 42; and, 4. Fill materials.

It was recommended that a Detailed Site Investigation (DSI), comprising intrusive investigations in the AECs identified, be carried out.

4.2 Qualtest (2024) Detailed Site Investigation

Qualtest completed a Detailed Site Investigation (DSI) on the site in November 2024 (ref: NEW23P-0246-ABv2, dated 1 November 2024).

The objectives of the assessment were to:

- Assess the presence of contamination in soil and groundwater on the site;
- Update the Conceptual Site Model (CSM) for the site based on the findings of the DSI; and
- Provide recommendations for further assessments, remediation and/or management, as required.

In order to achieve the above objective, Qualtest carried out the following scope:

- Excavation of 28 test pits (TP01 to TP12 and TP101 to TP116), and collection of soil samples from 24 test pit locations and 19 surface soil locations (SS1 to SS18 and SS117);
- Laboratory analysis of selected soil samples for identified Contaminants of Potential Concern (COPC); and,
- Data assessment and preparation of this Detailed Site Investigation Report.

The sampling locations are shown on Figures 4A and 4B, Appendix A.

The sampling and analysis identified the following contamination:

- Zinc contamination exceeding the EIL at test pit TP108_0.0-0.1 within the former sawmill waste area (north-eastern portion) of the site. The 95% Upper Confidence Limit (UCL) of the average concentration was calculated for the waste area (TP05 to TP113) which showed zinc below the adopted criteria.
- Copper contamination exceeding the EIL at test pit location TP111_0.0-0.1 within the former sawmill waste area (north eastern portion). The 95% UCL could not be calculated as the exceedance was considered a hotspot (>2.5 times the criteria). The test pit encountered timber, bricks and metals, where the copper was considered likely to be due to a fragment of metal and localised. The area surrounding TP111_0.0-0.1 was densely vegetated and no signs of vegetation stress were observed. These areas are not proposed to be disturbed by the development and was considered that remediation of the copper would pose net adverse environmental impact (vegetation clearing, and excavation and disposal to landfill). Based on this the copper does not pose a risk to the ecological receptors.
- Bonded fragments of Asbestos Containing materials (ACM) were identified below the adopted HSL, but on the site surface in test pit TP101_0.0-0.1 in the central western portion of the site (former sawmill office). ASC NEPM (2013) states “no visible evidence for surface soil (top 10cm)” is permitted for all types of asbestos. It was considered that the contamination was likely caused by weathering/demolition of the former sawmill office building and localised to this area of the site.

The Conceptual Site Model identified a complete exposure pathway for site users due to ACM fragments on the site surface.

Based on the results of the Detailed Site Investigation, it is considered the site can be made suitable for the proposed Food Manufacturing Hub, with the following recommendations:

- Preparation and implementation of a Remediation Action Plan (RAP) for remediation of the identified ACM contamination.

- Preparation and implementation of an Asbestos Management and Removal Control Plan (AMRCP) would be required for the handling and disposal of ACM or ACM impacted soils.
- Preparation and implementation of an Unexpected Finds Procedure. It is recommended that an environmental scientist is present during vegetation clearing and excavations for the proposed detention basin and associated drainage lines.

5.0 Conceptual Site Model

Based on the assessments completed, a Conceptual Site Model was developed. It is noted that AECs identified in the PSI where no contamination was identified in the DSI, have not been included in the CSM.

Table 5.1 – Conceptual Site Model – Post Detailed Contamination Assessment

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling Completed	Potential & Complete Exposure Pathways
1B. Former sawmill and recycling depot on Lot 3: Former office building – use of ACM	Asbestos	Top-down debris from demolition of office building	Soils	Site users	Inhalation of asbestos fibres	TP101	Complete exposure pathway for site users due to ACM fragments present on site surface

5.1 Contamination Requiring Remediation

Based on the DSI (Qualtest, 2024), the following contamination requires remediation and/or clearance. The location of the area requiring remediation is shown on Figure 6, Appendix A.

Table 5.1 – Contamination Requiring Remediation

Location	Contamination	Area/Volume
Central western portion of site – footprint of Former Sawmill Office	Bonded ACM detected on site surface (below human health criteria) at TP101	~50m ² to depth of ~0.1m ~5m ³

Notes: Volumes do not include bulking factors.

6.0 Remediation Program

The remediation goal for the site, with respect to contamination, is to remediate the site to a condition such that it is suitable for the proposed Food Manufacturing Hub (commercial/industrial) from a contamination perspective.

6.1 Remediation Hierarchy

The NEPC (1999) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 1999) provides a preferred hierarchy of options for site clean-up and/or management which is outlined as followed:

- If practicable, on -site treatment for the contamination so that it is destroyed and the concentrations are reduced below the adopted site clean-up criteria; or
- Offsite treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level.

If the above is not practicable:

- Consolidation and isolation of the soil on site by containment within a properly designed barrier; or
- Removal of contaminated material to an approved facility followed, where necessary, by replacement with appropriate material; or
- Where the assessment indicated remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

6.2 Remediation Options

Options for the remedial strategies for the contamination that requires remediation (see Table 5.1) are outlined in Table 6.2, along with the advantages and disadvantages of each remedial option. Note, options that are not suitable/appropriate for the contamination type have not been included.

Table 6.2 – Remediation Options

Contamination/Issue	Remediation Options	Advantages	Disadvantages
Contaminated/impacted surface soil ACM above HSL within surface soils	Remove ACM fragments and dispose ACM to landfill	No ongoing management of impacted soil (i.e. no need for long-term EMP/AMP). Proven remediation method in NSW. Typically more cost effective for small volumes of material. It is often a community expectation that asbestos is removed from site.	Can be difficult to remove all fragments.
	Excavate ACM impacted surface soils and dispose to landfill	No ongoing management of impacted soil (i.e. no need for long-term EMP/AMP). Proven remediation method in NSW. Typically more cost effective for small volumes of material. It is often a community expectation that asbestos is removed from site.	Generally, not in line with ESD principles. Landfill disposal fees can be excessive when volumes are large.
	Cap and contain	Generally, more in line with ESD principles than removing materials to landfill. Lower cost than disposal to landfill.	Would require assessment of an appropriate location to place material. On-going management of impacted soil (i.e. long-term AMP). The long term AMP may require notification on title and Section 10.7 certificate.

Contamination/Issue	Remediation Options	Advantages	Disadvantages
	Chemical immobilisation	Can be used for hydrocarbons, metals, asbestos. Can be used to reduce the waste classification of soils with high concentrations (i.e. hazardous waste or restricted solid waste). In line with ESD principles (reducing waste, and/or reducing waste that requires specialist disposal).	Will require assessment of proposed placement location(s), including depth etc. Not suitable for areas proposed for landscaping or gardens, as soils unlikely to support plant life following immobilisation. Immobilised material would likely need to be placed away from surface water and groundwater, to prevent potential aggressivity and/or erosion impacts. Effectiveness can be hindered by moisture content, clay content, and particle sizes. The location and extent of immobilised contamination would require notification on title and Section 10.7 certificate. Council approval required.

Note: ESD = Environmentally Sustainable Development, EMP = Environmental Management Plan, AMP = Asbestos Management Plan

6.3 Preferred Remedial Strategy

Following discussion with the client and based on the results of the contamination assessment, the likely volume of contaminated soils, and estimated costs of remediation options, the preferred remedial strategy for the site is:

- Removal of bonded ACM fragments to an extent where no visible ACM is present;
- Validation of the footprint of the former office building would be required after removal of the fragments; and,
- Disposal of ACM fragments to a licensed waste facility.

6.4 Contingency Remedial Strategies

Should the above remediation strategy not be possible/practical, the following contingency remedial options would be considered:

- Disposal of material to a licensed waste facility; or
- Containment of the ACM impacted soils on the site.

If these options are adopted, the RAP would be updated or an addendum prepared.

6.5 Proposed Remediation Plan

Step 1 – Preparation of an Unexpected Finds Procedure and Asbestos Removal Control Plan

As discussed in Section 4.0, above, bonded ACM was previously identified in surface soils around the former sawmill office area, located in the central-western portion of the site.

As ACM has been identified, an Asbestos Removal Control Plan (ARCP) will be required. The ARCP will be prepared by the remediation contractor prior to works commencing. Qualtest will review the ARCP prior to implementation.

There is a low potential for unexpected finds to be encountered during earthworks on the site. Unexpected finds could include ACM (in areas not previously identified), stained and/or odorous soils, illegally dumped waste materials, or potentially contaminated material/fill (based on visual and/or olfactory assessment).

An Unexpected Finds Procedure has been developed for implementation during remediation and earthworks. The Unexpected Finds Procedure outlines procedures to follow in the event ACM, stained/odorous soils, illegally dumped waste, or potentially contaminated material/fill is identified on the site during remediation and earthworks. The Unexpected Finds Procedure is attached in Appendix B.

Step 2 – Removal of Bonded ACM in Surface Soils Via Raking and Removal

To remove surface ACM to an extent where the ACM in surface soils is below the adopted Human Health Screening Level (HSL), and no asbestos is visible on the site surface (top 10cm), the following is planned:

- Dividing the former office footprint into approximate 2m x 2m grids. The footprint is about 10m x 4m (40m²), which equates to 10 grids. Figure 6, Appendix A, shows the approximate location and area of the former office building;
- An environmental scientist will carry out a visual assessment, including raking of the top 10cm of the soil, and pick up/removal of ACM fragments (if any) from each grid. The grids

will be walked-over and raked in one direction (i.e. east-west), and then 90° in the other direction (i.e. north-south);

- Once no visible ACM is present, gravimetric testing for ACM will be carried out, with one sample for gravimetric testing collected from each grid;
- If ACM is identified above the HSL in the gravimetric testing, further raking and removal will be carried out, until no ACM above the HSL is identified; and
- Disposal of the ACM to an appropriately licensed waste facility, and dockets retained for inclusion in the validation report.

It is expected that less than 10m² or 100kg of ACM would be require removal. Therefore, a licensed asbestos removalist is not required for disposal of the ACM. Should more than 10m² or 100kg of ACM require removal, a licensed asbestos removalist would be engaged to carry out disposal.

Step 3 – Importation of Material and Backfill of Excavations

Based on the proposed remediation (removal of ACM fragments), it is not anticipated that material would be imported as part of remediation works. If material is proposed to be imported, it would need to comprise:

- Material that meets the definition of VENM as defined in NSW EPA (2014) Waste Classification Guidelines; and/or,
- Materials that meet an appropriate Resource Recovery Order/Exemption under Part 9, Clause 93 of the POEO (Waste) Regulation 2014 (i.e. Excavated Natural Material).

7.0 Validation Program and Reporting

In order to evaluate the data required to assess a site, ASC NEPM (2013) recommends the use of the seven-step DQO process. The seven-step DQO process is an iterative planning approach that is used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of a site.

The seven steps are:

- Step 1: State the Problem;
- Step 2: Identify the decisions;
- Step 3: Identify the inputs to the decisions;
- Step 4: Define the boundaries of the study;
- Step 5: Develop an analytical approach;
- Step 6: Specify acceptable limits on decision errors; and,
- Step 7: Develop the plan for obtaining data.

This DQO process has been adopted for the validation programme.

7.1 Step 1 - State the Problem

ACM is present on the site surface and requires offsite disposal. There are several issues to be addressed as part of the remediation and validation:

- The surface soils in the footprint of the former office building impacted by bonded ACM require removal of the ACM and disposal of ACM to a licensed waste facility.
- Following ACM removal, the footprint of the former office building requires clearance/validation to demonstrate that the bonded ACM is below the adopted HSL and no asbestos is visible from the surface (top 10cm).
- If material is required to be imported to backfill the excavations, then the material being imported needs to comprise material with an appropriate classification (i.e. VENM, or appropriate Resource Recovery Exemption material).

7.2 Step 2 – Identify the Decisions/Goal of the Study

The decision to be made based on the results of the validation assessment is:

- Is the site suitable for the proposed Food Manufacturing Hub (commercial/industrial land use) development from a contamination perspective?

To achieve this, the validation program needs to demonstrate that:

- Surface soils (top 10cm) are free from visible ACM and ACM in surface soils are below the adopted bonded asbestos HSL;
- Dockets have been retained to demonstrate that waste requiring offsite disposal was disposed of to the appropriately licensed facilities;
- Imported material used to backfill excavations (if any) are appropriate for the use (i.e. comprises VENM, or appropriate Resource Recovery Exemption material).

7.3 Step 3 - Identify the Information Inputs

Inputs into the decision are:

- Have validation samples been collected, and clearances carried out, in the various materials and/or places as required?
- Have validation samples been collected at the required frequencies, and adequately represent the condition of the materials and/or places?
- Have validation samples been analysed for the COPCs identified?
- Have concentrations exceeding the adopted criteria been reported in the validation samples?
- If concentrations exceeding adopted criteria have been reported, have these areas been further remediated or otherwise managed?
- Was imported material used to backfill excavations (if any) appropriate for the use (i.e. comprises VENM, or appropriate Resource Recovery Exemption material)?
- Have dockets been retained to demonstrate that the waste was disposed to appropriately licensed facilities?

The informational inputs into the decision are:

- Field observations;
- Validation laboratory results;
- QA/QC documentation and data;
- Material tracking information:
 - Records for the raking and removal of ACM fragments;

- Waste dockets for materials disposed offsite;
- Certificates for material imported to site (if any);
- Records of volumes exported and imported;
- Adopted remediation criteria, and relevant NSW EPA endorsed guidelines.

7.4 Step 4 - Define the Boundaries of the Study

The study boundary is defined laterally as the site boundary, Lot 3 DP612071 and part Lot 42 DP1237817, within the Central Coast local government area. The site is located at 2-4 Brownlee Street, Ourimbah NSW (refer to Figure 1, Appendix A). The site area is about 1.8ha, with the proposed development area about 0.9ha. Vertically, the study boundary will be defined by the depth of ACM impact. It is anticipated the vertical boundary would be a maximum of 0.1m bgs.

Temporally the study boundary will be the dates of the remediation works including ACM removal, disposal of ACM, importation of materials (if any), and validation sampling/ clearances.

7.5 Step 5 - Develop an Analytical Approach

The analytical approach can be defined as: -

- If the laboratory quality assurance/ quality control data are within the acceptable ranges, the data will be considered suitable for use;
- If the COPCs are reported above the adopted criteria and/or at elevated levels (where no criteria are available) then it will be considered whether further assessment, remediation and/or management measures are required;
- Where practical and/or appropriate, the 95% Upper Confidence Limit (UCL) of the validation samples will be calculated. If the 95% UCL is above the adopted criteria, then it will be considered whether further assessment, remediation and/or management measures are required; and,
- Where concentrations are below the assessment criteria, then no further assessment, remediation and/or management of that contaminant, in that area, in that media, is required. This is provided samples have been collected at the required frequencies (as per NSW EPA guidelines) and adequately represent the conditions on site, if not, additional sampling may be required.

7.6 Step 6 - Specify Acceptable Limits on Decision Errors

There are two types of errors:

- Type 1 – finding that the site is contaminated, when it is not;
- Type 2 – finding that the site is uncontaminated, when it is.

To reduce the potential for errors, the following will be applied:

- Appropriate field sampling methodologies and collection of field data (including sampling frequency);
- Robust QA/QC assessment of field procedures and laboratory data; and
- Appropriate sampling and analytical density.

The adopted criteria are shown in Section 7.6.1 below.

7.6.1 Validation Criteria

Asbestos Materials in Soil

The assessment of known and suspected asbestos contamination in soil is based on:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (April 2013), NEPC 2013, Canberra; and
- *WA DoH 2009 Guidelines of the assessment and management of asbestos contaminated sites in Western Australia*, WA Department of Health and Department of Environment and Conservation.

Schedule B1, Section 4 NEPM (2013) provides guidance on the assessment of both friable and non-friable forms of asbestos in soil. This guidance is based on the WA DoH (2009) Guidelines that presented risk-based screening levels for asbestos in soil under various land use scenarios.

For the purpose of assessing asbestos impacts in soil, three groups are recognised:

- *Asbestos Containing Material (ACM)* - which is in sound condition although possibly broken or fragmented and the asbestos is bound in a matrix. This is restricted to material that cannot pass through a 7mm x 7mm sieve;
- *Fibrous asbestos (FA)* - friable asbestos material, such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products;
- *Asbestos fines (AF)* - includes free fibres of asbestos, small fibre bundles and also ACM fragments that pass through a 7mm x 7mm sieve.

The health screening levels for asbestos in soil for commercial/industrial have been adopted. The adopted criteria are shown in Table 7.6 below.

Table 7.6 – Adopted Validation Criteria

Contaminant	HSL D
Asbestos – bonded and FA/AF	No visible asbestos for surface soils
FA and AF %	0.001%
Asbestos – bonded	0.05%

7.6.2 Waste Classification Criteria

Soils or materials proposed to be disposed off-site would be classified in accordance with the NSW EPA (2014) Waste Classification Guidelines. The guidelines provide criteria for general solid waste, and restricted solid waste. Where concentrations exceed restricted solid waste, the material is classified as hazardous waste. Material containing asbestos (in any form or quantity) are classified as asbestos waste.

7.7 Step 7 - Develop the Plan for Obtaining Data

Validation of the site will comprise:

- Tracking of materials that are disposed offsite (i.e waste dockets); and,
- Asbestos clearance/validation of the footprint of the former office building after removal of ACM fragments (see Figure 6, Appendix A) to assess that the area is suitable for commercial/industrial land use; and,

The validation sampling process is described in the sections below.

7.7.1 Validation Sampling

Validation soil sampling will be completed in accordance with the following guidelines:

- Australian Standard AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds;
- ASC NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure; and,
- The NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines.
- WA DoH (2021) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, WA Department of Health and Department of Environment and Conservation.

Removal of Contaminated Surface Soils

In order to validate/clear the footprint of the former sawmill office building (former sample location TP101):

- Observations of the surface to check for ACM (asbestos clearance). This will include dividing the areas into grids, raking each grid in two directions and walking over each grid in two directions;
- Gravimetric validation soil samples will be collected from the area at a frequency of one sample per 25m².
- The visual observations and validation sampling will be carried out by a "competent person" as per the definition in ASC NEPM (2013).

The following steps will be undertaken in order to obtain representative validation samples for laboratory analysis:

- Samples will be collected using hand tools (stainless steel shovels or trowels), or directly from the excavator bucket.
- Gravimetric asbestos testing will comprise collection of a 10L sample, sieving the sample through a 7mm sieve, and weighing of potential ACM fragments (if any).
- Hand tools used during sample collection will be decontaminated between samples by rinsing with phosphate-free detergent and potable water.
- A clean pair of disposable nitrile gloves will be worn when handling samples.

Quality Assurance / Quality Control

No field QC samples are proposed to be collected or analysed, as the only contamination being tested is asbestos.

7.7.3 Material Tracking

Material tracking will be undertaken during remediation to demonstrate the appropriate disposal of materials and importation of appropriate materials (if any) to backfill excavations. The tracking will include the following information:

- Date and time;
- Volume of material; and
- Final destination for material disposed offsite;

- Dockets / assessments for material imported to site (if any); and,
- Records of volumes exported and imported.

7.8 Validation Reporting

A validation report will be prepared, following completion of remediation works, and will include:

- Description of remediation works completed.
- Unexpected finds and how they were managed (if any).
- Material tracking documentation, including waste dockets.
- Results of validation samples, compared to relevant criteria.
- A statement of whether the site is suitable for the proposed Food Manufacturing Hub, from a contamination perspective.

The Validation Report will be written by an experienced and appropriately accredited contaminated land consultant, in accordance with relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

8.0 Site Management Plan

The management strategies for environmental issues that may arise during site works are discussed in the sections below. These strategies are considered a minimum requirement to be followed by the remediation contractor before and during remediation activities. It is envisaged that the remediation contractor will develop site specific environmental work plans for soil excavation and disposal.

8.1 Asbestos

As discussed in Section 4.0 above, fragments of bonded ACM were identified in one location within the former sawmill office area (TP101_0.0-0.1).

It is expected that less than 10m² or 100kg of ACM would be require removal. Therefore, a licensed asbestos removalist is not required for disposal of the ACM. Should more than 10m² or 100kg of ACM require removal, a licensed asbestos removalist would be engaged to carry out disposal.

An Asbestos Removal Control Plan (ARCP) will be prepared prior to remediation works for ACM impacted soils. The ARCP should be prepared by the nominated contractor prior to undertaking the remediation works and followed throughout the works. The ARCP will need to be implemented during removal of materials that include asbestos.

8.2 Air Emissions and Odours

If machinery is required for the remediation works, the Contractors will properly maintain and operate machinery to reduce engine emissions and exhaust.

No volatile contamination, likely to generate odours, has been identified on the site. If volatile contamination is encountered as an unexpected find (considered unlikely to occur), the environmental consultant should be contacted to provide advice.

8.3 Dust

The remediation works will involve raking of soils and general vehicular movements across the site. As such, dust generation is considered a potential environmental impact to the surrounding environment and the public.

The following management measures should be implemented to prevent dust impacts:

- A communications and complaints register should be kept on site to ensure that concerns of local residents and workers are recorded and addressed;
- If dust migration from the work area is considered excessive due to high winds, the works should be delayed or limited during these periods;
- Trucks removing material from the site should have loads covered;
- Vehicular movements entering and exiting the site should be kept to a minimum;
- Machinery should be floated onto and off the site;
- Machinery and vehicle tyres should be washed down prior to leaving the site; and
- Works should be limited during times of high winds.

8.4 Noise Controls

Noise will be generated during site works, and is considered an important environmental issue. It is anticipated that the level of noise generated will not exceed that of a typical construction site.

Noise limitations imposed by Central Coast Council are to be adhered to. This may include restrictions on working days and hours, and acceptable noise levels.

8.5 Stormwater and Soil Management

No excavation of soils are proposed. If excavations are required, adequate storm water run-off, run-on and sediment control measures will be put in place for the works.

If temporary stockpiling of material is required, the stockpiles will need to be managed in a way to prevent movement of material beyond the site boundaries. The following recommendations provide guidance on managing stockpiled material:

- Access to the stockpiled material should be limited, keeping the stockpile within site fences;
- Stockpiles should be placed on level ground or ground with slopes of $<5^\circ$ from the horizontal;
- Placed at least 40m away from drainage lines and creeks; and,
- Adequate straw bales and/or silt fences should be placed around the perimeter of the stockpile area to filter runoff from the stockpiles and prevent overland storm water flow affecting the base of the stockpile.
- Stockpiles should be covered to prevent dust migration, and infiltration of rainwater leading to sediment run-off.

8.6 Traffic

Traffic may be a concern to local residents during export of material on and off site.

For the remediation component, based on the volumes of material potentially requiring disposal, it is considered that traffic disruptions would be minimal and short term.

8.7 Working Hours

Working hours are to be consistent with Central Coast Council requirements.

8.8 Access Restrictions

It is necessary to restrict access solely to authorised staff and contractors who have appropriate levels of personal protective equipment. Site fencing should be maintained, and unauthorised personnel are to be kept outside.

9.0 Occupational Health and Safety

Prior to the commencement of site works, a Safe Work Method Statements (SWMS), or equivalent, should be prepared. The SWMS should contain the following information:

- The steps of the activity to be performed;
- Hazards and perceived risks for each step of the activity;
- Control measures (including PPE) to be adopted to eliminate or minimise the hazards; and,
- The persons responsible for implementing control measures.
- Emergency contact numbers;
- Site security procedures;
- First aid wardens on the site; and
- Procedures for the safe handling of chemicals and contaminated soil.

The SWMS will be reviewed when new tasks are undertaken. The SWMS will be updated as required to cover the tasks undertaken.

10.0 Licenses and Approvals

In accordance with State Environmental Planning Policy (Resilience and Hazards) 2021, the works are considered to comprise Category 2 remediation works, therefore, Development consent is not required for the remediation works. However, Development Consent is required from Central Coast Council for the proposed Food Manufacturing Hub, and it is anticipated that the remediation works would be included in that Development Consent.

Removal of greater than 10m² / 100kg of bonded asbestos, or any amount of friable asbestos containing material offsite would require notification to SafeWork NSW. At least 7 days should be allowed for the notification.

The volume of material being removed from the site should be documented by the contractor, supported by material tracking sheets and waste disposal dockets.

11.0 Contact Details and Community Relations

11.1. Contact Details

Contact details for the principal contractor and subcontractor are provided in Table 11.1.

Table 11.1 – Contact details

Contact Name	Contact Number
Principal/Site Owner – Central Coast Industry Connect Limited (CCIC)	TBA
Contractor – TBA	TBA
Environmental Consultant – Qualtest Emma Coleman (Project Manager)	(02) 4968 4468

11.2. Community Relations

The community are aware of the project through previous exhibition of the DA.

The procedures outlined in the RAP should ensure that remediation works on the site have minimal impact on the surrounding community. Enquiries regarding environmental and communication issues from members of the local community and neighbouring properties should be documented and referred to the client.

12.0 Contingency Plan / Unexpected Finds

A contingency plan is provided below in Table 12.1, for the management of unexpected finds.

Table 12.1 – Contingency Plan and Unexpected Finds

Unexpected Conditions	Proposed Action
During the remediation work, material is encountered which appears to be potentially contaminated and appears different from fill or soils described in previous assessment reports.	1. Suspicious material/soils which has already been excavated should be banded, placed in a skip bin and/or stockpiled on low-density polyethylene plastic sheeting and protected from erosion and seepage. 2. Excavation works at that part of the site where the suspicious material (soil) was encountered should cease until observations are carried out by Qualtest. 3. Based on the observations, Qualtest will provide interim advice on health and safety of remedial works, soil storage and soil disposal to allow remediation to proceed if possible. 4. Based on sampling and analysis of the material, Qualtest will provide advice as to remedial requirements for the material. 5. Suspicious material/soils may include fibrous, oily or odorous materials/soil, drums, metal or plastic chemical containers or brightly coloured material.
Validation samples exceed the adopted validation criteria.	Continue excavations and re-sample.

	Assess other remediation options if further removal works are not practical (i.e. excavation of ACM impacted soils).
Complaints from residents regarding noise pollution, dust and odours.	Increased monitoring, revision of management plans. Investigate and manage source of complaint.

13.0 Conclusions

Implementation of the RAP by appropriately qualified contractor and environmental consultant, who would conform to the strategies and procedures outlined in this RAP, would mitigate the potential risk of environmental impacts (from contaminated soil) during remediation and bulk earthworks.

Conformance with the remediation, material tracking and validation procedures would enable an appropriate validation assessment and Validation Report to be completed, to demonstrate that the site is suitable for the proposed development.

Based on the above, it is considered that appropriate implementation of the RAP would achieve the objective of rendering the site suitable for the proposed development.

14.0 References

NEPC (2013) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as amended in 2013, National Environment Protection Council (ASC NEPM, 2013).

NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines.

NSW EPA (2014) Waste Classification Guidelines.

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

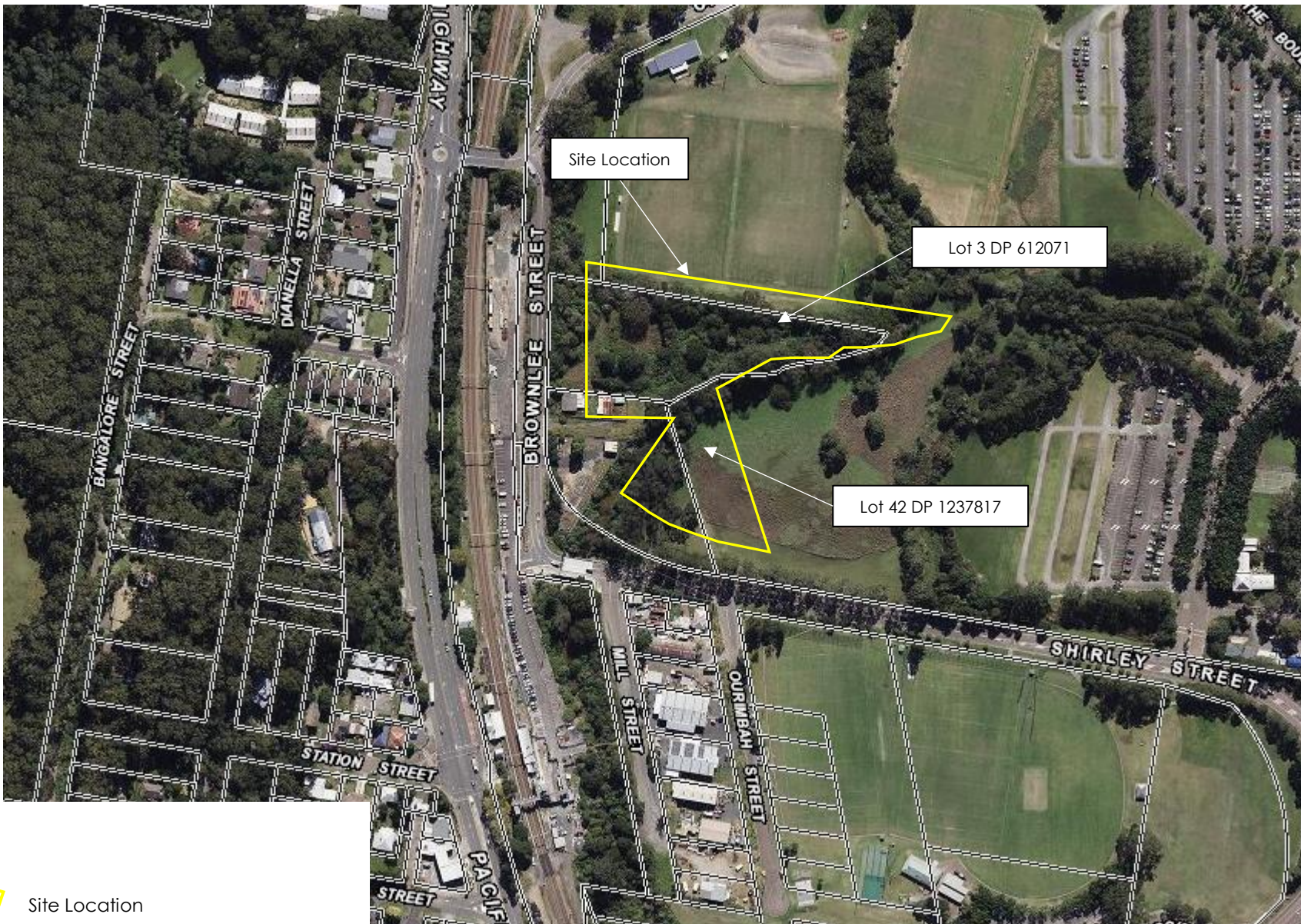
Olszowy et al (1995) Trace Element Concentrations in Soils from Rural and Urban Areas of Australia

Qualtest (2023) Preliminary Site Investigation, ref: NEW23P-0208-AA dated 24 November 2023

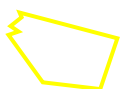
Qualtest (2024) Detailed Site Investigation, ref: NEW23P-0208-Abv2, dated 1 November 2024.

APPENDIX A:

Figures



LEGEND:



Site Location

Image obtained from Sixmpas

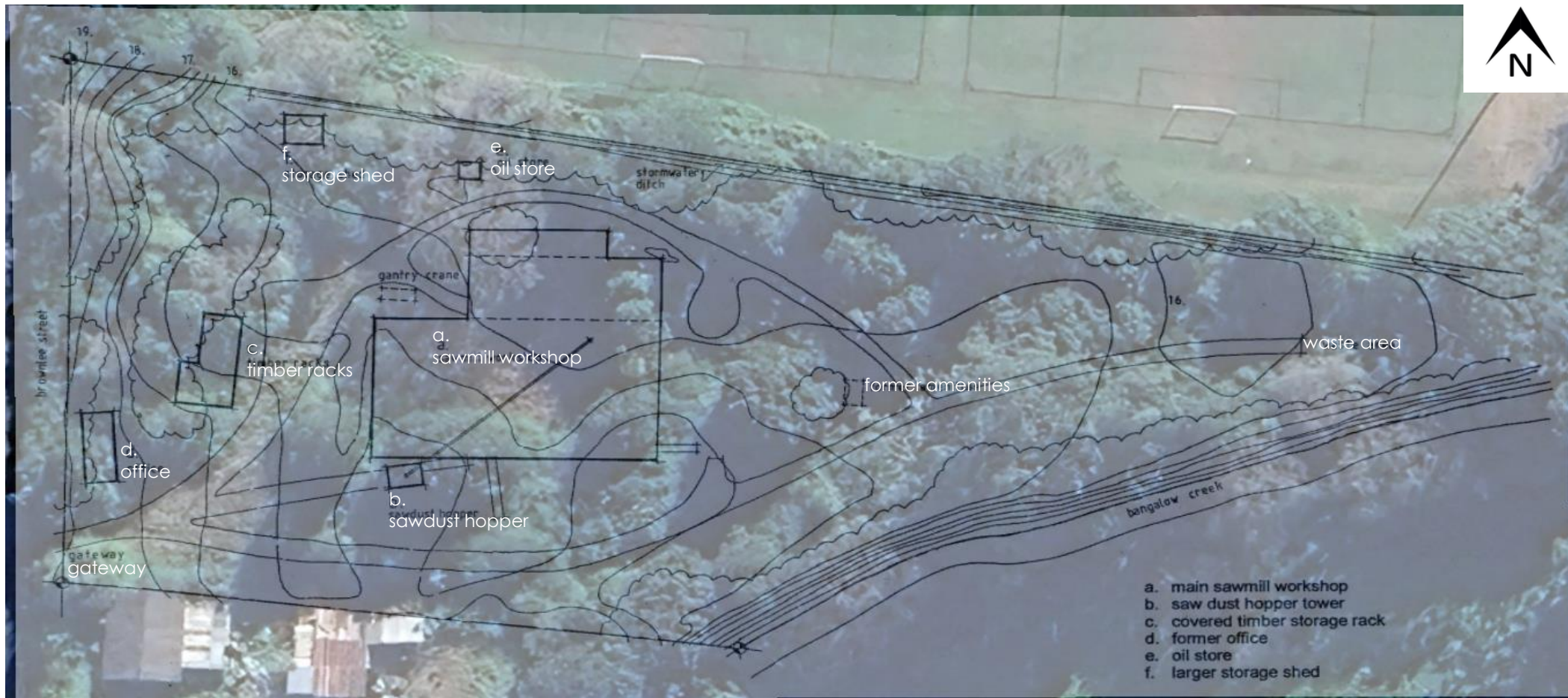


Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 1
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Site Location Plan	Date:	1/11/2024



Image sourced from Nearmaps

Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 2
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Current Site Features Plan (2023)	Date:	29/10/2024



Sawmill Building Footprints plan (Ecotecture, 2002)

Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 3
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Sawmill Building Footprints Plan Overlaid on Google Earth Image	Date:	8/11/2022



Image sourced from Nearmaps

Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 4A
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Sample Plan - Northern Portion	Date:	29/10/2024



LEGEND:

- Approx. Surface Sample Location (25/10/2024)
- Approx. Testpit Location (25/10/2024)
- Approximate Site Boundary

Image sourced from Nearmaps

Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 4B
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Sample Plan - Southern Portion	Date:	29/10/2024

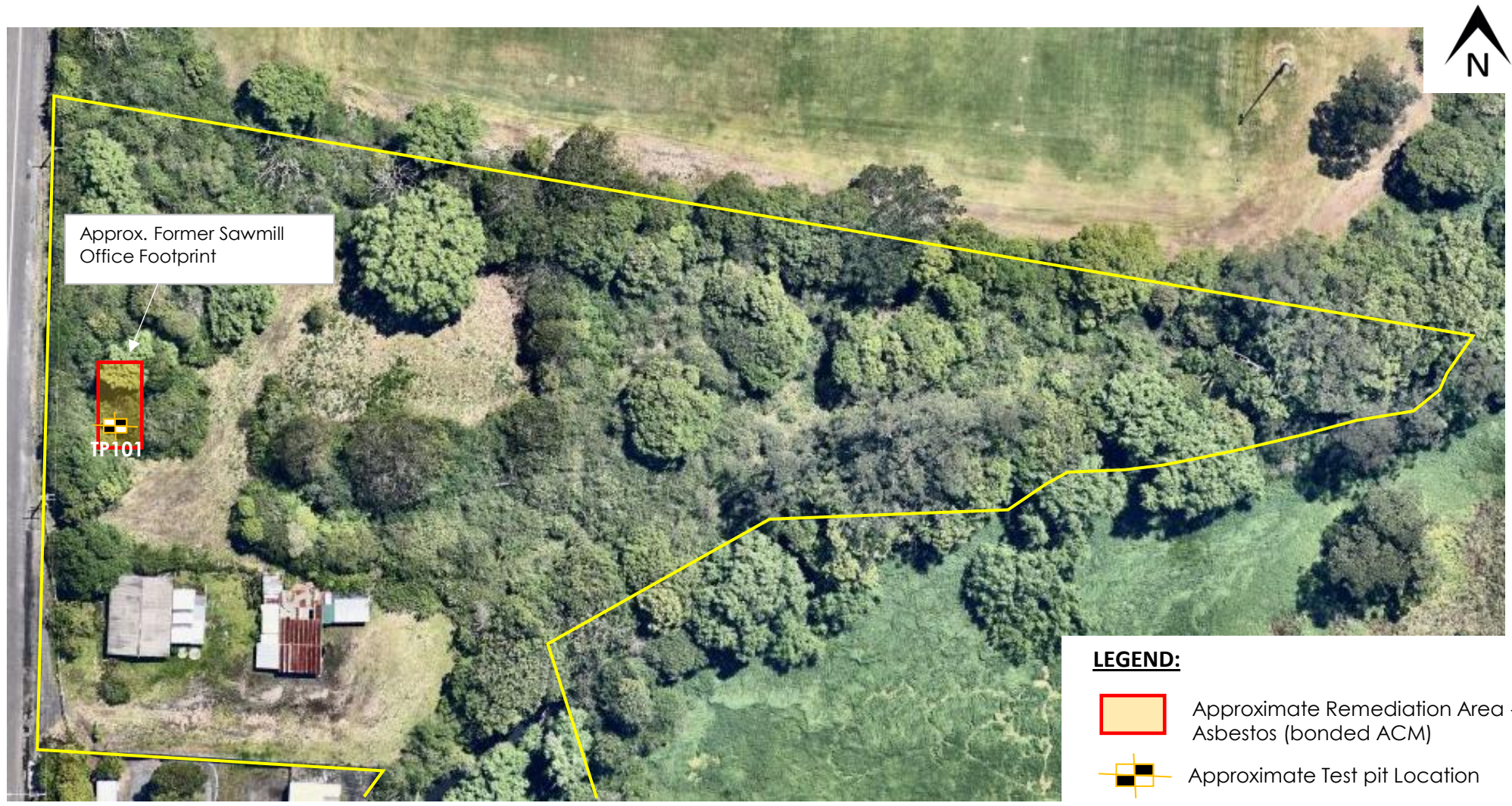


LEGEND:

- Approx. Surface Sample Location (1/11/2023)
- ⊠ Approx. Testpit Location (1/11/2023)
- ⊠ Approx. Testpit Location (25/10/2024)
- ▮ Approximate Site Boundary

Image sourced from Nearmaps

Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 5
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Identified Contamination	Date:	1/11/2024



LEGEND:

-  Approximate Remediation Area - Asbestos (bonded ACM)
-  Approximate Test pit Location
-  Approximate Site Boundary

Image obtained from Nearmaps, image dated 1 January 2023.



Client:	Central Coast Industry Connect Pty Ltd	Drawing No:	FIGURE 6
Project:	Remediation Action Plan	Project No:	NEW23P-0208-AE
Location:	2-4 Brownlee Street, Ourimbah	Scale:	N.T.S.
Title:	Expected Remediation Area	Date:	1/11/2024

APPENDIX B:

Unexpected Finds Procedure

APPENDIX B – UNEXPECTED FINDS PROCEDURE

B1.1 Management of Unexpected Finds

Due to the previous use of the site for commercial/industrial purposes, there is a potential for unexpected finds to be encountered during works on the site.

Should an unexpected find be encountered during remediation or earthworks, works will stop in the affected part of the site. This area will be isolated to minimise potential for disturbance to the affected soil/material, and prevent contact with the potentially contaminated material. The Contractor will notify the environmental consultant as soon as practical of the Unexpected Find.

B1.2 Training and Induction of Personnel

Personnel involved in remediation or earthworks on site are to be inducted on the identification of unexpected finds. The induction can be undertaken at the time of general site induction and refreshed periodically at toolbox meetings.

The induction will cover the types of 'Unexpected Finds' that may be encountered, and provide awareness of the general approach when 'Unexpected Finds' are encountered. Personnel involved in remediation, vegetation removal or earthworks on site are to be made aware of the 'Unexpected Finds Procedure' (this document), and a copy must be readily available on site.

Additionally, it is noted that some forms of potential contamination may not be associated with visual or olfactory indications in the field. The unexpected finds procedure would not provide protection against such impacts. Therefore, the Contractor Environmental Management Plan (CEMP) should include requirements for workers in contact with soils to wear appropriate Personal Protection Equipment (PPE), including:

- Long sleeves and pants;
- Chemical resistant gloves, such as nitrile gloves;
- If there are strong odours, respirators with appropriate cartridges; and,
- Where asbestos has been identified on the site or where indicators of potential additional asbestos containing materials are observed, P2 (bonded ACM) or P3 friable ACM), rated face masks and Tyvek suits.

It is noted that workers will also be required to wear PPE associated with working on construction sites, that are not listed above (i.e. hard hats, steel capped boots, and high visibility clothing).

B1.3 Potential Unexpected Finds

Based on findings of previous investigations and site history, potential 'Unexpected Finds' which could reasonably be expected within the site are summarised in Table B1.

APPENDIX B – UNEXPECTED FINDS PROCEDURE

Table B1: Summary of Reasonably Expected 'Unexpected Finds'

Unexpected Find	Characteristics	Contaminants of Potential Concern
Waste materials	Can include a variety of materials such as metal pieces, tyres, plastic, asphalt, wood, building materials (i.e. bricks, concrete, asbestos containing materials etc), chemical containers, and metals drums.	TRH, PAH, Metals, Asbestos
Structures containing potentially contaminated materials	These could include: • Pipework constructed of asbestos containing materials, or coated in asbestos lagging; • Buried sumps or tanks, potentially used for storage of waste oils or other products; • Treated timbers.	TRH, PAH, Metals, Asbestos
Asbestos Containing Materials	Found as fragments of asbestos cement sheeting on this site. Generally, asbestos sheeting is identified as being white/grey in colour (often brown due to dirt) with dimples on one side and is a fibrous type of material. It is extremely difficult to tell by visual appearance if a material contains asbestos. Asbestos can be also be found in friable form. Friable asbestos provides a greater threat to human health than bonded asbestos as it has been weathered or degraded to the point where the asbestos fibres can more easily become airborne, increasing the risk of inhalation. Friable asbestos is typically found as small fragments of asbestos sheeting (<7mm diameter), lagging around pipes, insulation products and the like. Friable asbestos has not been identified on the site to date. In the event that an Unexpected Find is suspected to potentially contain asbestos then precautions should be taken immediately.	Asbestos
Soil/material with hydrocarbon odour and/or oily stain or sheen	Generally identifiable by slight to strong odours normally associated with diesel, oil, or petrol. Hydrocarbon stained soils are typically stained grey to black, and may have a sheen. Hydrocarbon sheens may be observed on seepage water.	TRH, BTEX, PAH, Lead

Notes: TRH – Total Recoverable Hydrocarbons; BTEX – Benzene, Toluene, Ethylbenzene, Xylenes; PAH – Polycyclic Aromatic Hydrocarbons; VOCs – Volatile Organic Compounds; OCPs – Organochlorine Pesticides

APPENDIX B – UNEXPECTED FINDS PROCEDURE

B1.4 Unexpected Finds Procedure

Should new, or potential, unexpected finds be encountered during remediation or earthworks the following procedure applies:

1. Stop work in the potentially hazardous area as soon as it is safe to do so and move away from the area. If strong odours are associated with the find, move to the upwind side of the area.
2. Assess the potential immediate risk to human health posed by the unexpected find. The environmental consultant can help make this assessment, if required.
3. Delineate an exclusion zone around the affected area using appropriate barriers and signage. Odour suppression is not considered likely to be required, based on the potential contaminants identified for “unexpected finds”.
4. Contact the Environmental Consultant for advice. The Environmental Consultant will assess the unexpected find and provide advice on:
 - a) Preliminary assessment of the contamination and need for immediate management controls;
 - b) Carry out further assessment and provide advice on what remediation/management works are required and how such works are to be undertaken in accordance with the RAP (and contaminated site regulations and guidelines):
 - i. Assess the remediation/management required for the find;
 - ii. If material is not suitable for reuse on site, waste classify the material and dispose to a licensed landfill;
 - iii. If material is suitable for onsite remediation/management, carry out remediation/management (if required).
 - c) Remediation/management works required (if required);
 - d) Validation works required following remediation works (if required).
5. Works are not to recommence in the affected area until appropriate advice has been obtained from the Environmental Consultant, and the Environmental Consultant has provided relevant information to the Contractor.
6. If it is deemed safe to do so by the Environmental Consultant and/or the Contractor, works can resume in the affected area.

APPENDIX C:

VENM & ENM Checklists

ENM Checklist

Source site address	
Volume of material	
Description of material	
Was there a photo of the material included?	
Was the assessment carried out in accordance with the ENM Order?	
Does the material pass the ENM criteria classifying it as ENM?	
Review of ENM assessments by others	
ENM status	
Signature and date	

VENM Checklist

Source site address	
Volume of material	
Description of material	
Review of VENM assessments by others	
Known source site history (i.e. aerial photographs, anecdotal information)	
Review of geology and acid sulfate soil maps for source site	
Check sampling completed (minimum two samples for TRH, BTEX, PAH, Metals, OCP/OPP and asbestos)	
VENM status	
Signature and date	