

JBS&G 64628 – 155,970

L004 (Interim Audit Advice Tarago FSMC IEMP Rev 0)

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Transport for NSW

L004 Interim Audit Advice 004 – Tarago Former Station Masters Cottage Interim Environmental Management Plan 106 Goulburn Street Tarago NSW

Dear Joanne,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Transport for NSW (TfNSW, the client) to conduct a site audit for Lot 1 in Deposited Plan (DP) 816626. Lot 1 DP 816626 is a block of land of approximately 1,550 square metres (m²) known as the former Tarago Station Masters Cottage (the site). The extent of the site area and the location of the site are shown in Figure F1, in Attachment 2.

Andrew Lau is a Site Auditor accredited by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997* (CLM Act 1997) (Accreditation Number 0503).

The site is located to the south of the former Woodlawn Mine ore concentrate load-out complex which operated between the 1970s and 1990s, and adjacent to the Goulburn - Bombala Country Regional Network (CRN) railway line. The Woodlawn Mine operated between 1978 and 1998 producing lead, zinc and copper concentrates was located approximately eight kilometres to the west of the railway line. Historical load out of ores from trucks to rail cars for processing has been identified as a potential source of contamination of the site.

On 25 March 2020, the adjacent Tarago Station rail corridor (part Lot 22 DP 1202608) was declared (Declaration No. 20201103) to be significantly contaminated land under s11 of by the *Contaminated Land Management Act 1997* (CLM Act) by the NSW EPA. The EPA determined that *'lead contamination has impacted adjacent land at 106 Goulburn Street, Tarago (Lot 1 DP816626), with soil found to contain lead at concentrations exceeding national guideline values for the protection of human health and the environment'* and that *'there are complete exposure pathways to lead for occupants of 106 Goulburn Street'*.

On 3 August 2022, the former Tarago Station Masters Cottage was declared (Declaration No. 20221105) to be significantly contaminated by the EPA on 3 August 2022. The EPA determined that regulation of lead contamination was required.

The EPA considered that harm has been or may be caused by the identified contaminant as follows:

- *'Lead concentrations in soil within the historic Station Masters Cottage (Lot 1 DP816626) exceed national guideline values for the protection of human health and the environment.*
- *There are potentially complete exposure pathways for onsite and offsite ecological receptors.*
- *Based on the current levels of contamination identified, the site is not appropriate for the existing land-use and remediation or management is required. Remediation will be required to facilitate residential land-use which it is zoned to do so under the Goulburn-Mulwaree Council LEP (2009).*
- *Lead levels in soil and dust were identified within the historic Station Masters Cottage at levels greater than the relevant assessment criteria.*

- *Lead, arsenic, chromium, copper, nickel and zinc were found on the rail corridor at concentrations exceeding national guidelines values for the protection of human health and environment which may have migrated to the Station Masters Cottage and as such should be assessed for’.*

The former Station Masters Cottage was used as a private residence until sometime in 2020 and is reported (Ramboll 2023b) to remain unoccupied ‘under care and maintenance until a remediation or management strategy has been developed and implemented’.

This interim audit advice (IAA) has been undertaken in accordance with the requirements provided by the client, to provide an independent review of environmental investigations completed at the site. The objectives of this review were to assess the appropriateness of the measures proposed for the interim management of risks to identified receptors.

2. Reports Reviewed

The following report was reviewed in the preparation of this IAA:

- *106 Goulburn Street, Tarago Interim Environmental Management Plan. Rev 5, 12 October 2023, Ramboll Australia Pty Ltd (Ramboll 2023b).*

Review of the reports has been undertaken against the requirements of *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines* (NSW EPA 2020) and the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013).

The following reports were also considered as part of this audit and preparation of this IAA, with relevant background information included in **Section 3**:

- *Tarago Rail Corridor Environmental Data Gap Assessment. Rev 0, 30/01/2020, Ramboll Australia Pty Ltd (Ramboll 2020a).*
- *Tarago Rail Corridor and Tarago Area Detailed Site Investigation. Final, 29/07/2020, Ramboll Australia Pty Ltd (Ramboll 2020b).*
- *Tarago Former Station Masters Cottage Detailed Site Investigation. Rev 1, 13 September 2023, Ramboll Australia Pty Ltd (Ramboll 2023a).*
- *Tarago Lead Management Action Plan. Rev 7, 27/10/2023, Ramboll Australia Pty Ltd (Ramboll 2023c).*

3. Site Description

The site details have been summarised in **Table 1**. Plans identifying the subject site have been presented in **Attachment 2**.

Table 1: Summary Site Details

Street Address	106 Goulburn Street Tarago NSW 2580
Property Description	Lot 1 in DP 816626
Parish	Mulwaree
County	Argyle
Local Government Area	Goulburn Mulwaree Shire Council
Property Size	Approximately 0.155 hectares
Zoning	RU6 Transition (Goulburn Mulwaree Local Environmental Plan 2009)

Previous Use	Residential
Current Use	Vacant
Proposed Use	Commercial/industrial

3. Site Condition

The site was reported (Ramboll 2023b) to comprise of the former Station Masters Cottage with a carport and small shed annexed to the north and west respectively, to the main residence. The main residence is a single storey brick building with a corrugated iron roof. The rear sunroom, laundry, front verandah and carport flooring comprises of concrete slab on ground. Sub-floor ventilation in the outer walls of the main part of the house and flooring located not much higher than ground level indicates that this portion of the house is suspended on short piers. The residence is fenced with the eastern fence separating the residence from a publicly accessible grassed area at the intersection of Goulburn and Boyd Street.

The site is relatively flat with a gentle gradient to the east towards Mulwaree River consistent with the surrounding topography. Outside of the building footprint, the site is grassed. During high volume or sustained rainfall events, surface water runoff is expected to flow north easterly towards Goulburn Street drains.

The quality of groundwater sampled from a well in the south eastern corner of the fenced garden was found to be suitable for irrigation and livestock watering use, and for domestic potable use once suspended sediments had been settled (Ramboll 2020a).

The former ore loadout facility associated with the Woodlawn Mine has been demolished and was located approximately 20 metres north of the site.

The former Station Masters Cottage residence is reported (Ramboll 2023a) as having been constructed in the 1880s. The site was reported to have been acquired by Transport Asset Holding Entity (TAHE) in 2021.

4. Summary of Contamination Status / Issues

The site was reported (Ramboll 2023a) as having been used as a private residence until 2020 when the residents were relocated following the identification of potential risks to human health and the environment.

Environmental investigations undertaken in the Tarago Station rail corridor between 2015 and 2019 (Ramboll 2020b and 2020c) had identified high concentrations of lead in soil within the fence line of the former Station Masters Cottage property that presented risks to human health and ecological receptors. Concentrations of lead that pose risks to site users were also detected in internal and external dust samples, and concentrations indicative of lead-based paints in flaking paint collected from the former Station Masters Cottage.

Detailed site investigation (Ramboll 2023a) was subsequently undertaken at the former Station Masters Cottage to delineate previously identified lead impact and assess other contaminants of potential concern (CoPCs) related to historical activities. It is understood that contamination outside the house has not been remediated and that removal of dust from inside the house has not been undertaken.

Based on the combined soil sampling results for the site (Ramboll 2020b and 2023b), the consultant (Ramboll 2023b) provided the following conclusions:

- Soil contamination was identified on-site. The main source of contamination was identified as historic ore concentrate loading and transport activities in the adjacent rail corridor. The mechanism of contamination is surface deposition with limited migration via leaching.
- The key contaminant of concern for human health is lead generally in surface to shallow soils (to a depth of 0.1 m bgl) with some occurrences to a depth of 0.25 m bgl.
- Concentrations of lead, zinc and copper present in shallow soils may pose a risk to ecological health (transient wildlife, grass and shrubs).

- Concentrations of lead were found to be reduced (below public open space land use criterion) in the area to the east of the fence line. The contaminant exposure risk outside the fenceline (within site boundary) is considered to be low and does not require management. The *Tarago Lead Management Action Plan* (Ramboll 2023c) defines control measures for the mitigation of potential exposure risks in the broader community, related to contamination at or originating from the Tarago Rail Yard.
- Flaking lead-based paints from degradation of the former station masters cottage building/structures (front verandah) has been identified as a source of soil contamination.
- The fenced portion of the site is not suitable for commercial/industrial or residential land use without remediation and/or management.
- The site should be managed under an Interim Environmental Management Plan (IEMP) until a remediation strategy has been selected and implemented.

5. Interim Management of Risks

To mitigate risks posed from potential exposure to identified heavy metals contamination at the site, an IEMP has been developed for implementation until a long term remedial strategy is implemented for the site.

TfNSW is ultimately responsible for the IEMP with the manager of the Country Rail Network (CRN) being responsible for IEMP implementation. The IEMP is required to be integrated with the management systems for the CRN thus providing a mechanism for enforceability. The IEMP contains passive controls that are protective of residents and future intrusive maintenance workers of the site.

The primary routes of exposure relevant to human health were identified as via ingestion following direct contact or inhalation of soil, dust or paint. Primary routes of exposure leading to ecological uptake in the environment was identified to be through dust generation and transport of soils or dissolved contaminants in surface water and groundwater. Activities causing soil disturbance and dust generation can exacerbate the movement of soil contamination. The adopted site management strategy requires isolation of contamination and implementation of engineering controls until such time remediation is completed or a permanent management solution is implemented. The principal hazard mitigation measure adopted is restriction of access to contamination by creation of an exclusion zone and implementation of strict management controls if access to the area is required. Specific hazard mitigation measures are outlined in the IEMP (Ramboll 2023b).

The IEMP is required to be reviewed at least annually; or when contaminated material is removed/disturbed; changes of land use occur; a long term lead management plan is in place; if requested by TfNSW or the CRN Manager; a non-conformance has been identified in the IEMP; or when remediation and validation have been undertaken and long term management of the site is not required.

6. Auditor Opinions / Requested Actions

Based on the information reviewed as part of this Interim Audit Advice and subject to the limitations in **Attachment 1**, the auditor opinions and requested actions to meet the requirements of the audit are presented in **Table 2**.

Table 2: Audit Opinions / Requested Actions

Audit Opinion	Requested Action
<p>The information provided by the consultant regarding site conditions, surrounding environment and site history is considered adequately complete and generally have met the requirements of EPA 2020.</p> <p>The information provided was also consistent with the observations made during the audit site inspection conducted on 18 June 2020.</p>	<p>Nil</p>

Audit Opinion	Requested Action
<p>Soil investigations across the site identified concentrations of lead in soil above the adopted health based assessment criteria for residential with accessible soils/gardens which requires remediation and/or management.</p> <p>Concentrations of lead in soil to the east of the fence line are below the public open space land use criterion and not considered to require management.</p> <p>Concentrations of heavy metals including copper, lead and zinc were identified in soil above the adopted ecological assessment criteria in multiple locations across the site.</p> <p>Contamination on the site is considered to have migrated from historic ore concentration loading and transport activities in the adjacent rail corridor.</p>	<p>Remediation of the site is required prior to use for commercial/industrial or residential with garden/accessible soil purposes.</p>
<p>Flaking lead-based paint from the former Station Masters Cottage is also considered to have contributed to the contamination of soil at the site.</p>	<p>This will need to be considered in the sequencing of any remediation works to be undertaken at the site.</p>
<p>Identified lead impacts in soil at the site pose risks to human health.</p> <p>The Interim Environmental Management Plan (Ramboll 2023b) developed for the site is considered appropriate to mitigate risks to identified human health receptors in the interim.</p>	<p>The IEMP (Ramboll 2023b) is required to be implemented until a long term remedial strategy is implemented.</p>

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report, but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 0412 512 614 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
 NSW EPA Accredited Site Auditor
 Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments:

- 1) Limitations
- 2) Site Plans

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this audit are based on the information obtained at the time of the investigations.

Attachment 2 – Site Plans

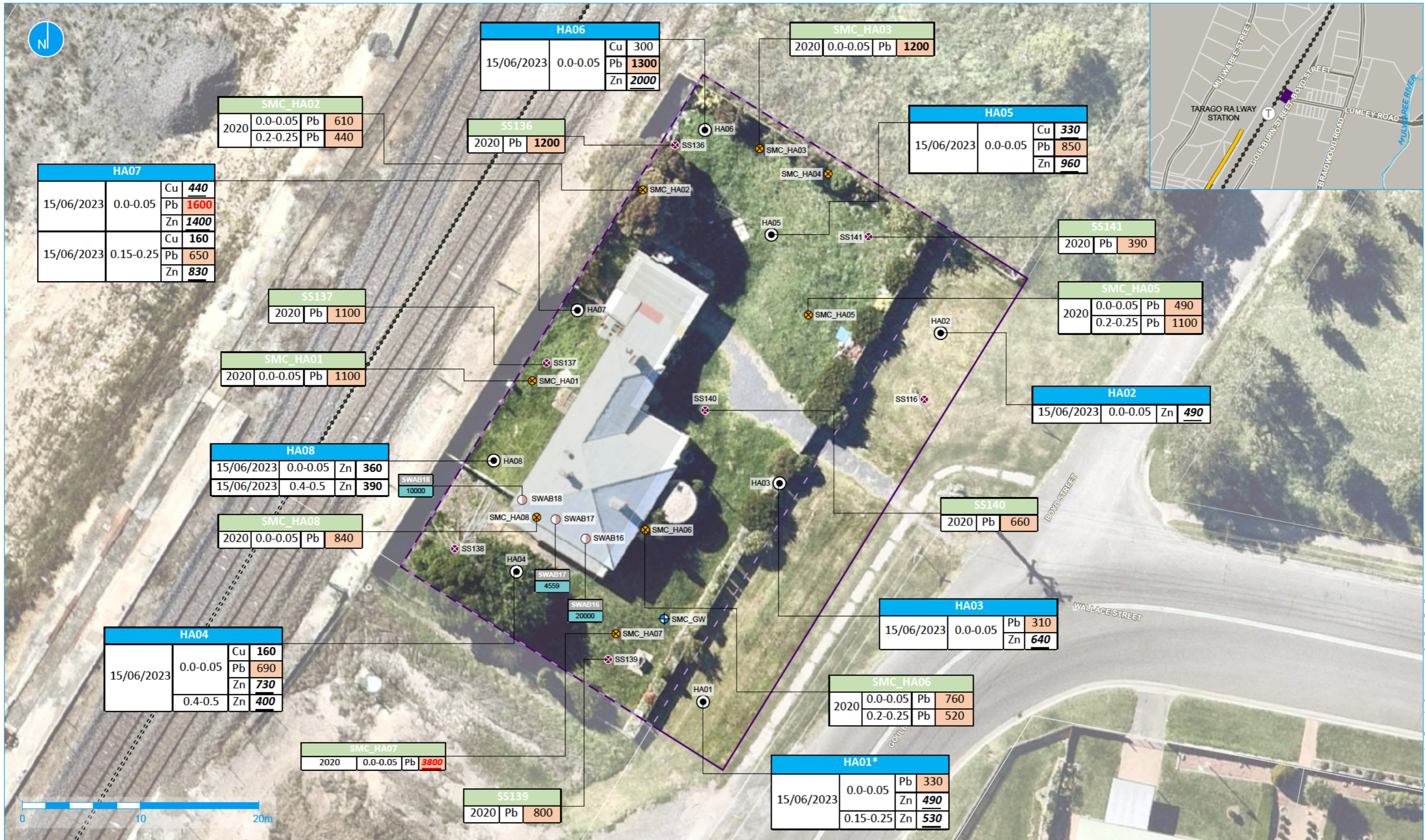


- Legend**
- Property boundary
 - Site fence
 - Previous sample locations
 - Tank water sample
 - Dust sample
 - Paint sample

Lead exceedance criteria

Soil Depth (m) >300 (mg/kg)	Rainwater tank sediment >300 (mg/kg)	Paint >0.1%
Rainwater tank water >0.01 (mg/L)	Dust interior Floors >108 (µg/m ²) Window sills / >1076 (µg/m ²)	

Note - Sample locations from 2019/2020 are approximate only and adjusted to imagery available at the time.



- Legend**
- Property boundary
 - Site fence
 - Hand auger sample location (June 2023)
Sample name prefix "SMCDSI_"
 - Groundwater sample
 - Hand auger sample
 - Shallow soil sample

- Previous sample locations**
- Dust sample
 - Groundwater sample
 - Hand auger sample
 - Shallow soil sample

Lead exceedance criteria

Dust Exterior	>4300 (µg/m ²)
EIL criteria are based on aged SS-EIL values	
Samples collected during the 2020 investigation	
Samples collected during 2023 investigation	

Exceedance criteria for soil

Date	Depth (m)	Analyte	NEPM - HIL A RESIDENTIAL	NEPM - HIL D COMM/INDUSTRIAL	NEPM - EIL RESIDENTIAL	NEPM - EIL COMM/INDUST
		Copper - filtered (Cu)	6000 mg/kg	240,000 mg/kg	110 mg/kg	160 mg/kg
		Lead - filtered (Pb)	300 mg/kg	1,500 mg/kg	1,100 mg/kg	1,800 mg/kg
		Zinc - filtered (Zn)	7400 mg/kg	400,000 mg/kg	250 mg/kg	370 mg/kg

*Following QA/QC assessment, the highest concentration (from the primary sample) has been adopted for the purposes of characterization.
 Note - Sample locations from 2019/2020 are approximate only and adjusted to imagery available at the time.

RAMBOLL Figure 2 : External building and soil samples and exceedances