Interim Environmental Management Plan

Australian Rail Track Corporation

Goulburn Roundhouse
12 Braidwood Road,
Goulburn, NSW 2580

May 2023

Ref. 20025.76 R07

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Report Details

Report:

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for

Australian Rail Track Corporation Limited

Distribution:

Deliverables	Status	Date	Recipient
1	Version 1 Version 2 Version 3	12/07/22 19/04/23 16/05/23	Mark Curran – Senior Environmental Specialist
1	Version 3	16/05/23	Cavvanba Project File
1	Version 3	16/05/23	Cavvanba Library
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Table of Contents

1.0 Introduction 1
1.1 Background 1
1.1.1 Implementation 1
1.2 Objective 1
1.2.1 Timeframe for EMP 1
1.3 Scope of this EMP 2
1.4 Relevant documents 2
1.5 Limitations 2

2.0 Site information 4

3.0 Contamination Summary 5
3.1 Area A – North of Roundhouse 5
3.2 Area B – Southwest of Roundhouse 5
3.3 Area C – South of Roundhouse 5
3.4 Area D – East of Existing Fence Line 6
3.5 Hazard identification 6
3.6 Groundwater (July, 2022) 6

4.0 Regulatory requirements 7
4.1 Contaminated Land Management Act 1997 7
4.2 Protection of the Environment Operations Act 1997 7
4.3 Environmental Planning and Assessment Act 1979 7
4.4 Work Health and Safety Act 2011 7
4.4.1 Asbestos 8
4.4.2 Lead 8
4.5 Comcare 8

5.0 Integration and inductions 9
5.1 Integration of this EMP 9
5.2 Induction 9

6.0 Management of contamination 10
6.1 Strategy 10
6.2 On-site management 11
6.3 Off-site migration prevention measures 14
6.4 Reporting 14

7.0 Measurement, evaluation and review 15
7.1 EMP review 15
7.2 Record keeping 15

7.3 Modification of this EMP 15
7.4 Cessation of this EMP.....15

8.0 References 16

Figures

Figure 1 – Site Location

Figure 2 – Asbestos and Soil Exceedances

Figure 3 – Groundwater Exceedances

1.0 Introduction

This interim environmental management plan (EMP) has been developed by Cavvanba Consulting Pty Ltd (Cavvanba) on behalf of Australian Track Rail Corporation Limited (ARTC) to manage contaminated land issues at the Goulburn Roundhouse, located at 12 Braidwood Road, Goulburn, New South Wales (NSW) 2580 (herein referred to as the site). The site location is presented on Figure 1.

This interim EMP is an updated version of the previous plan dated 26 April 2021. The update is based on new information, reported in *Additional Environmental Site Assessment – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580* (Cavvanba, August 2021).

This report should be read in its entirety, and in conjunction with Cavvanba's *General Limitations*, included as Section 1.5.

1.1 Background

This interim EMP provides information that relates to soil and groundwater contamination at the site associated with the site's historical use as a locomotive depot. Specifically, it relates to the presence of non-friable asbestos containing material and lead contamination at the site identified during recent environmental investigations completed by Cavvanba between 2020 and 2022.

The management plan is intended to be a temporary measure and should be put in place until such a time that remediation activities are completed and more permanent measures can be developed.

1.1.1 Implementation

This interim EMP acknowledges the contamination issues present on-site to assist the relevant controllers of a workplace in reducing the direct exposure pathway of contamination to occupants of the site. Given the temporary and interim nature of this EMP, there is a higher degree of active implementation required, when compared to a long-term passive EMP which maintains an engineered structure that has eliminated the exposure pathway.

The information provided is therefore intended to assist a person conducting work in the development of their own project specific environmental and work health and safety (WHS) management, described herein as their *systems of work*. Any recommendations provided herein are for information purposes only, and users of this information should develop project – specific requirements in accordance with their environmental and WHS systems of work.

1.2 Objective

The overarching objective of this interim EMP is to manage soil and groundwater contamination at the site until additional information is obtained which supports more permanent measures, or demonstrates that the site is suitable for its intended land use.

The EMP has therefore been developed based on current information and applies an appropriate level of precaution to managing exposure to contamination.

1.2.1 Timeframe for EMP

The EMP will apply immediately and must not cease until further information is available to demonstrate that the potential risks are no longer present.

1.3 Scope of this EMP

The scope of this EMP is limited to ensuring an appropriate level of awareness of site contamination is communicated and applies to the following:
- to authorised personnel requiring access to the site;
- maintenance and management of the site; and
- for any necessary and controlled subsurface activities.

This EMP intends to ensure appropriate management measures are in place to prevent potential off-site migration of contaminated airborne dust and/or surface water and prevent unauthorised persons access the site.

This EMP is not intended to enable the future redevelopment and/or unrestricted occupation of the site.

1.4 Relevant documents

This EMP has been prepared to act as a standalone document, however the following documents are considered most relevant to the site and can be referred to if further information is required:

- *Groundwater Monitoring Event - Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580* (Cavvanba, July 2022).

- *Detailed Site Investigation – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580* (Cavvanba, January 2021).

- *Additional Environmental Site Assessment – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580* (Cavvanba, August 2021).

1.5 Limitations

The findings of this reporting are based on the objectives and scope of the services provided. Cavvanba Consulting performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties or guarantees, expressed or implied, are made.

Cavvanba's review/assessment is strictly limited to identifying the environmental conditions associated with the subject property in regard to site contamination, and does not seek to provide an opinion regarding other aspects of the environment not related to site contamination, or to the suitability of the site in regard to: landuse planning and legal use of the land; and/or regulatory responsibilities or obligations (for which a legal opinion should be sought); and/or the occupational health and safety legislation; and/or the suitability of any engineering design. Reviews of such information are only in relation to the contaminated land aspects of any project or site. If specialist technical review of such documents is required, these should be obtained by an appropriate specialist.

The reporting and conclusions are based on the information obtained at the time of the assessments. Changes to the subsurface conditions may occur subsequent to the investigation described, through natural processes or through the intentional or accidental addition of contaminants, and these conditions may change over time.

Field monitoring, sampling and chemical analysis of environmental media and structures are 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 regulatory requirements, site history, and the proposed landuse, not on sampling and analysis of all media, at all locations, for all potential contaminants.

Ground conditions, contaminants, and material types/composition can vary between sampling locations, and this should be considered when extrapolating between sampling locations. Except at each sampling location, the nature, extent and concentration of contamination is inferred only.

Furthermore, the test methods used to characterise the contamination at each sampling location are subject to limitations and provide only an approximation of the contaminant concentrations. Monitoring and 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.

The absence of any identified hazardous or toxic materials at the site should not be interpreted as a warranty or guarantee that such materials do not exist at the site. Therefore, future work at the site which involves subsurface excavation or removal of structures or parts thereof, should be conducted based on appropriate management plans. These should include, *inter alia*, environmental management plans, including unexpected finds protocols, hazardous building materials management plans, and occupational health and safety plans.

If additional certainty is required, then additional site history information should be obtained, or additional exploration and sampling and analysis should be conducted. This decision should be made by the user of this information based on an appropriate risk management process, and the user should commission additional services if required.

2.0 Site information

The site consists of a single lot, identified as Lot 2 in Deposited Plan (DP) 1002813. The total site area is 46,390 m^2 and is located to the south of the Goulburn central business district, and immediately adjacent to the east of the Main South Railway line.

The site is currently used as a railway museum and actively operated as a Roundhouse by the Goulburn Locomotive Roundhouse Preservation Society Incorporated (GLRPS) for storage, restoration and maintenance of locomotives and rolling stock.

Access to the site is from Braidwood Road via a sealed asphalt access road in the central portion of the site and the remainder is otherwise unsealed gravel access roads, railway lines or fill material comprising coal and ash. Grass cover is present within the southern and eastern portion with sporadic vegetation and larger trees within isolated areas of the site. A chain link fence prevents unrestricted access to the site from Braidwood Road, however there is a portion in the southeast of the site where the fence line intersects, and does not align with the site boundary as presented on Figure 3. As a result, the south-eastern portion is accessible to the public.

The site identification and land use details are provided below.

Site Owner:	TfNSW
Site Manager:	ARTC
Lessee	GLRPS
Site Address:	12 Braidwood Road, Goulburn NSW 2580
Legal Property Description:	Lot 2 in DP 1002813
Property area:	Approximately 46,390 m^2
Co-ordinates:	Latitude: -34.773891 Longitude: 149.710899
Local Government Authority:	Goulburn – Mulwaree Council.
Elevation:	Approximately 638 metres (m) Australian Height Datum (AHD).
Landuse – Proposed:	Commercial / Industrial
Zoning:	IN1 – General Industrial

3.0 Contamination Summary

A summary of the known contamination sources areas for the site is discussed in the following sub-sections, with reference to the soil exceedances presented on Figure 2 and groundwater exceedances presented on Figure 3. The soil summary is based on data collected as part of environmental investigations completed between 2020 and 2022, and groundwater summary is based on data collected during the most recent groundwater monitoring event completed in February 2022.

The contamination in soil is associated with historical site filling and waste disposal areas, characterised by the following:

- lead in soil, being associated with fill material to the north and south of the roundhouse building; and
- asbestos in and on soil, where ACM has been identified to the north and south of the roundhouse building.

The site has been divided into four separate areas based on spatial distribution and contamination type, as discussed below.

3.1 Area A – North of Roundhouse

This area is located to the north of the roundhouse building, amongst buildings that currently or historically contain ACM. The area comprises approximately 1,200 m^2.

Co-located asbestos and lead contamination

Non-friable ACM fragments were identified across the surface of this area, and lead was reported to exceed the adopted assessment criteria at the surface and within fill material with a maximum reported concentration of 1,800 mg/kg. Fill material was reported to comprise black sandy gravel, with evidence of intermixed ash material to a maximum depth of 1.8 m (BH03) and minimum depth of 1.2 m (MW03).

3.2 Area B – Southwest of Roundhouse

This area is located to the southwest of the roundhouse building, adjacent to the western fenced boundary, and comprises an active railway siding which ceases at the roundhouse building. This area comprises approximately 2,200 m^2.

Asbestos contamination only

Non-friable ACM fragments were identified across the surface of this area. Fill material was reported to comprise black sandy gravel and spent coal ash to a maximum depth of 0.6 m (TP44), and minimum depth of 0.3 m (TP15). Test pit location TP13, was advanced within the buffer stop / small stockpile that was present at the end of the railway line.

Lead was reported below the adopted assessment criteria within samples collected from the fill material (including ash) within this area.

3.3 Area C – South of Roundhouse

This area is located to the south of the roundhouse building, and encompasses the area surrounding the former Wellington Building and Plumber's Shed. This area is bound to the east by the existing fence line and Fitter's Amenities Building, and comprises approximately 8,100 m^2.

Co-located asbestos and lead contamination

Non-friable ACM fragments were identified on the ground surface of this area. Fill material was reported to predominantly comprise black sandy gravel with spent coal ash to a maximum depth of 2.2 m (TP08), and minimum depth of 0.3 m (TP37 and TP38) in the southern portion of the site. Significant quantities of buried and layered ACM sheeting was identified at test pit locations, TP06, TP07 and TP08, present to depths of 2.2 m.

Lead was reported to exceed the adopted assessment criteria at the surface and within fill material with a maximum reported concentration of 9,550 mg/kg.

3.4 Area D – East of Existing Fence Line

This area is located to the east of the existing fenceline, and comprises the filled / raised area, encompassing the area immediately to the east of the Fitter's Amenities Building. This area comprises approximately 3,000 m^2.

Co-located asbestos and lead contamination

Non-friable ACM fragments were identified on the ground surface within areas of exposed bare soils. Fill material was reported to consist of a black sandy gravel with spent coal ash to a maximum depth of 2.2 m (TP30), and minimum depth of 1.2 m (TP21). Buried waste materials included bricks, glass, concrete, plastic, rags and steel were identified within a number of test pit locations. ACM sheeting was observed within test pit location TP30, from approximately 1.7 m to 2.2 m in depth.

Lead was reported to exceed the adopted assessment criteria within fill material at test pit location TP23, at a depth of 0.9 – 1.0 m and reported concentration of 1,540 mg/kg.

3.5 Hazard identification

Lead and asbestos are the primary risk drivers for the preparation of this interim environmental management.

Asbestos is classified as a hazardous material that poses a risk to human health by inhalation should asbestos fibres become airborne and person(s) are exposed to these airborne fibres.

Lead is a cumulative toxicant that affects multiple body systems and is particularly harmful to young children and developing foetuses. Its widespread use has resulted in extensive environmental contamination, human exposure and health problems. The main route of human exposure is via inhalation and ingestion of lead particulates (dust), and therefore management measures are focussed towards minimising dust generation and exposure on-site. Children and pregnant women are particularly susceptible to lead related health effects, and care should be taken to prevent the disbursement of lead dust and prevent any migration off-site within the surrounding environment.

3.6 Groundwater (July, 2022)

Groundwater standing water levels (SWLs) ranged from 3.579 m within MW10 in the north-eastern portion of the site to 6.706 m in MW02 within the north-western portion. The measured SWLs and calculated groundwater elevations indicated groundwater flow was in a north-easterly direction.

Light Non-Aqueous Phase Liquid (LNAPL) was recorded at a measured thickness of 0.16 m within MW06 during the 2022 monitoring event, and according to hydrocarbon fingerprinting was reported to have a chromatographic profile typical of biodegraded kerosene and diesel / light fuel oil.

All groundwater samples were reported below the CRC CARE health screening levels for vapour intrusion. Exceedances of the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) 95% protection of freshwater species were limited to chromium in select monitoring wells on-site, as presented on Figure 3.

4.0 Regulatory requirements

Regulatory aspects considered pertinent to the site and this EMP are discussed in the sub-sections below.

4.1 Contaminated Land Management Act 1997

The general objective of the *Contaminated Land Management Act 1997* (CLM Act) is to establish a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation under Division 2 of Part 3.

The Goulburn Roundhouse was notified to the NSW EPA under Section 60 of the CLM Act. The site is currently listed as under assessment. This interim environmental management plan may assist the NSW EPA in their decision-making process on whether the contamination present on-site is significant enough to warrant regulation under the CLM Act.

4.2 Protection of the Environment Operations Act 1997

Under the *Protection of the Environment Operations (POEO) Act* 1997, there is a duty to notify a pollution incident occurring in the course of an activity that causes or threatens material harm to the environment. The Act includes general provisions regarding requirements to not pollute waters, to prevent or minimise air pollution, to maintain and operate plant in a proper and efficient condition/manner, and to deal with materials in a proper and efficient manner to minimise noise impacts. The Act defines 'waste' for regulatory purposes and establishes management and licensing requirements.

PCBUs should ensure their systems of work include appropriate procedures and controls to ensure compliance with the requirements of the POEO Act, including the appropriate classification and management of wastes.

ARTC hold a licence for the site under the POEO Act for the scheduled activity of railway systems activities (EPL 3142). Based on the current contamination status of the sites, there is no imminent pollution incident requiring notification under the POEO Act.

4.3 Environmental Planning and Assessment Act 1979

Land contamination must be evaluated during development through local planning and development control processes. The site is not being managed under the planning process in accordance with the requirements of *State Environmental Planning Policy (Resilience and Hazards) 2021*.

4.4 Work Health and Safety Act 2011

The *Work Health and Safety (WHS) Act* 2011 no 10 is the overarching act in NSW relating to worker health and safety, and employer responsibilities. In addition, the *WHS Regulation* 2017 details the duties for employers, and sets regulations for employers to achieve required worker health and safety performance.

4.4.1 Asbestos

Chapter 8 of the *Work Health and Safety Regulation 2017* deals with the duty of care of a person conducting a business or undertaking with regard to asbestos. The key points relating to management of asbestos at the site are contained in Chapter 8, Part 8.3:

> *Clause 422 (1) A person with management or control of a workplace must ensure, so far as is reasonably practicable, that all asbestos or ACM at the workplace is identified by a competent person.*
>
> *Clause 429 (2) A person with management or control of the workplace must ensure that a written plan (an asbestos management plan) for the workplace is prepared.*
>
> *Clause 429 (3) A person with management or control of the workplace must ensure that the asbestos management plan is maintained to ensure the information in the plan is up to date*

In accordance with Safe Work Australia *(*July 2020*) How to Manage and Control Asbestos in the Workplace, Code of Practice*, (Safe Work Australia (SWA) Code of Practice), the following steps should be taken:

- identify all ACM at the site;
- develop and implement an asbestos management plan; and
- communicate the requirements to relevant stakeholders, such as contractors, tenants and / or employees.

4.4.2 Lead

Under the WHS Act 2011, a person conducting a business or undertaking at a workplace is required to ensure, so far as reasonably practicable, the health and safety of workers and others. Part 7.2 of the WHS Regulation 2017 sets out specific requirements to protect the health and safety of people at workplaces where lead risk work is undertaken. These include requirements to notify Comcare of lead risk work and the removal of a worker from lead risk work. Clause 392 describes the meaning of "lead process" as it relates to work health and safety.

A lead process must be assessed to determine if the process is lead risk work. Lead risk work means work carried out in a lead process that is likely to cause the blood lead level of a worker carrying out the work to exceed levels set out in the definitions. An assessment of whether lead risk work is or potentially will be undertaken at the site will be based on an assessment by a duly qualified professional experienced in contaminated land management and ARTC, and in accordance with the ARTC Lead Management Procedure (COR-PR-030).

4.5 Comcare

The *Commonwealth Work Health and Safety*, and *Safely Rehabilitation and Compensation* laws apply to ARTC. Comcare is the national authority for work health and safety, and workers' compensation for ARTC employees.

5.0 Integration and inductions

5.1 Integration of this EMP

ARTC must ensure that a system is in place to identify works which require management and integration of this EMP. The following list of typical personnel should be aware of and conduct their work in accordance with this EMP:

- authorised personnel requiring access to the site;
- maintenance and management of the site; and
- for any necessary subsurface activities.

This EMP also intends to ensure appropriate measures are in place to prevent potential off-site migration of contaminated airborne dust and/or surface water and prevent unauthorised persons access the site.

5.2 Induction

Inducting individuals prior to their work ensures that they are aware of the contamination that remains on the site. An induction should provide the individual with information regarding the site's management systems, the site's condition and their individual responsibilities, including how to enact their responsibilities.

Contamination awareness is a key aspect of the induction. Appropriate asbestos and lead awareness training must be incorporated into the induction process.

6.0 Management of contamination

This interim management plan relates to the presence of non-friable asbestos containing material and lead contamination in soil, and LNAPL and chromium in groundwater at the site. A summary of the asbestos and lead contamination areas have been graphically presented on Figure 2, and groundwater exceedances on Figure 3.

6.1 Strategy

The SafeWork Australia code of practice for managing risks of hazardous chemicals in the workplace provides a hierarchy of control measures. This hierarchy is a framework that is integrated widely into health and safety planning and is applicable for the management of contamination at the site.

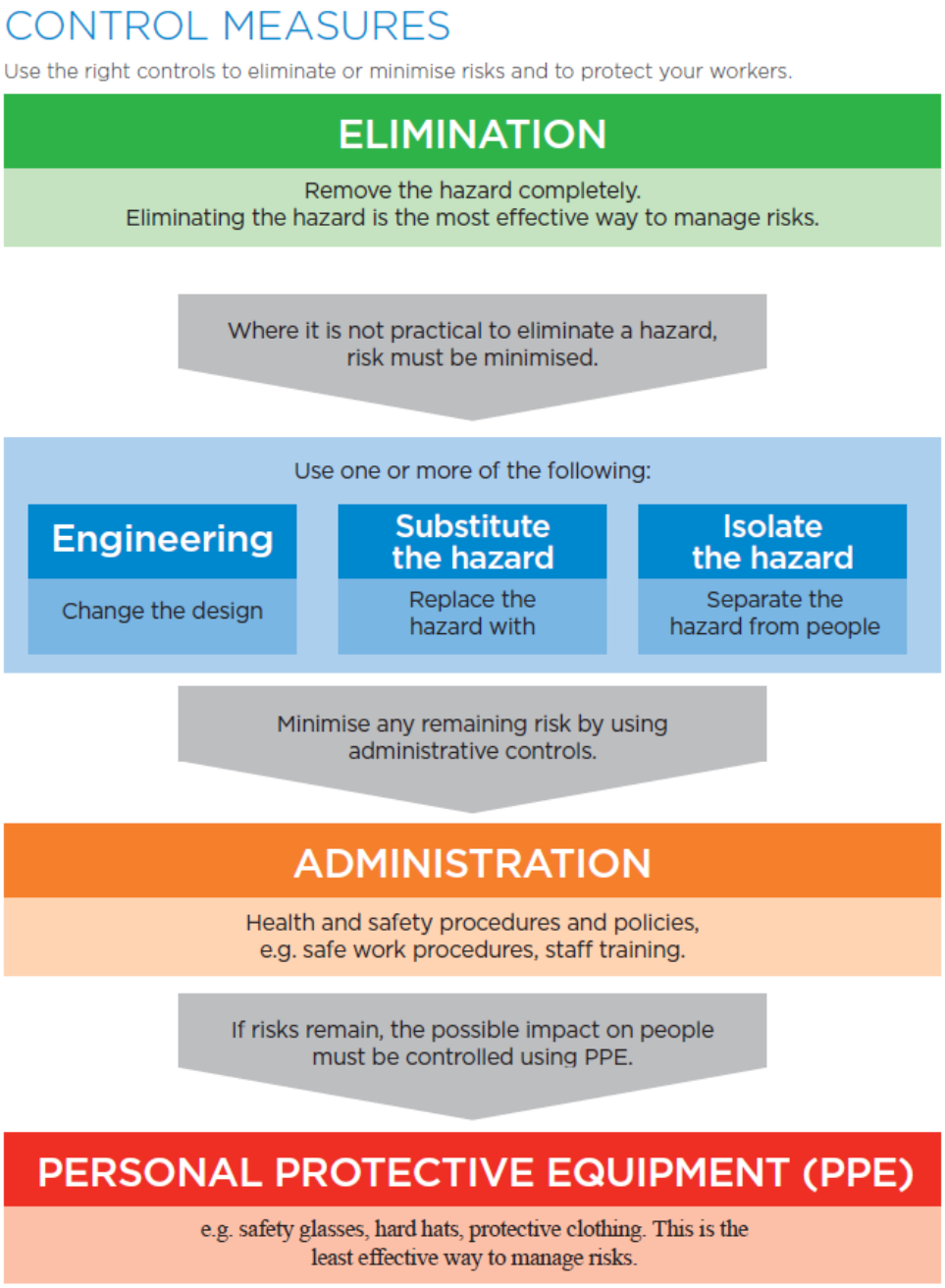

Figure 1: Hierarchy of controls (SafeWork NSW, 2019)

6.2 On-site management

The recommended interim environmental management controls for on-site activities are described in Table 6.1, below. These are provided only as a guide, as it is recognised that general activities conducted on-site can vary considerably. Therefore, it is the responsibility of the ARTC, GLRPS their contractors and any future tenants to determine the suitability of these controls with respect to their systems of work.

Table 6.1: Environmental management controls – On-site

Control	Person Responsible
Information management – Contamination awareness Prior to any works commencing, confirmation must be sought from ARTC environmental representatives regarding whether proposed works will disturb or impact contamination. This includes reviewing the locations of known contamination as presented within Figures 2 and 3, and also undertaking pre-works asbestos inspections and clearances by a SafeWork NSW Licensed Asbestos Assessor, should this be required. Appropriate environmental awareness training must be completed for all on-site personnel, which includes being inducted into this plan. Ensure all personnel working within the site understands how the contamination issues impact their work, and develop site-specific safe work method statements to make provisions for contamination are in place, where: – authorised personnel require access to the site; – maintenance and management of the site; and – for any necessary subsurface activities.	ARTC / site occupier / contractors
Housekeeping and exposure abatement *Exclusion zones – Restricting access and movement* The ACM and lead contamination areas as presented on Figure 2 are to be demarcated as exclusion zones with appropriate signage. These areas must not be used as trafficked thoroughfares and shall only be accessed by persons inducted into this plan. *Personal protective equipment (PPE)* PPE must include full length high visibility clothing, safety toe fully enclosed footwear, protective eyewear and gloves at all times. Hard hats / safety helmets and hearing protection will be task specific and based on company policies. A P2 dust mask must be worn whenever exposure to dust is likely. *Decontamination – On-site* The use of PPE is required whenever entering the site. Decontamination when leaving contaminated areas by removing / washing / cleaning clothes, boots and tools / equipment. Wash hands and face before eating, drinking and smoking or any hand to mouth behaviour. Avoid chewing gum or smoking when exposure to lead dust is likely. Purpose built facilities are to be implemented during lead risk works which provide clean and dust free areas for crib rooms, toilet facilities and decontamination areas, laundering and appropriate disposal of gloves, masks, coveralls, etc. All vehicles, plant and machinery must be inspected and decontaminated prior to leaving site, to ensure that contaminated soil is not tracked off-site. *Decontamination – Off-site* Decontamination prior to entering home. If possible, shower and launder clothes at work. If this cannot occur, leave boots and work clothes outside and launder separately. Baby / child seats and related equipment should not be in work vehicles. Discourage family visits to the workplace.	ARTC / site occupier / contractors

Site maintenance and management The primary purpose of management during lawn maintenance / trimming is to prevent soil disturbance and the generation of dust / windborne dust. Lawn maintenance must only occur when absolutely necessary. If the below principles cannot be achieved, lawn maintenance must not proceed. The following principles must be adhered to: – the above housekeeping and exposure abatement principles outlined above, must be adopted including pre-works asbestos inspections and clearances; – do not mow lawns within areas of thin or eroded grass; – do not traffic areas of thin or eroded grass; – lawn cutting height is to be set as high a reasonably practicable, ensuring no disturbance of bare ground (i.e. scalping); – maintenance works should only be undertaken during favourable weather conditions to ensure no generation / transportation of dust (i.e. not during dry, windy conditions); – minimise travel speeds and distances within contaminated areas; and – ensure the cabin of the machinery is enclosed, windows closed and cabin air conditioning is on recirculate with a high efficiency air filter. Ensure all seals are maintained to eliminate dust into the cabin. If this cannot be achieved, ensure operator dons appropriate respiratory protection and personal protective equipment.	ARTC / site occupier / contractors
Excavation activities – To be avoided, where practicable All excavation activities within the known contamination areas are to be avoided, where practicable and should only be undertaken if absolutely necessary. All excavation activities to be undertaken within the lead contamination areas, as presented on Figure 2, will likely be defined as lead risk work. An assessment will be undertaken by a duly qualified professional experienced in contaminated land management and ARTC, and in accordance with the ARTC Lead Management Procedure (COR-PR-030). All excavation activities to be undertaken within asbestos contamination areas will be required to be completed under asbestos control conditions and be undertaken by a SafeWork NSW licenced asbestos removal contractor. Excavation activities must only be undertaken when visible airborne dust is not generated. In addition to legislative requirements for working with asbestos and lead, the following control measures must be adopted: – the above housekeeping and exposure abatement principles outlined above, must be adopted including pre-works asbestos inspections and clearances. – do not exacerbate the problem. It is unacceptable to exacerbate exposure through unnecessary or uncontrolled disturbance. – do not generate dust. Where dust generating is considered likely during adverse weather conditions (dry and windy) the works must not proceed and/or be reassessed and modified as necessary. – ensure the cabin of the excavator is enclosed, windows closed and cabin air conditioning is on recirculate with a high efficiency air filter. Ensure all seals are maintained to eliminate dust into the cabin. – all workers must remain upwind from the excavation. A P2 dust mask and Type 5 single use Tyvek suit must be worn for all on-ground personnel exposure and for all other personnel when exposure to dust is likely. – application of dust suppressants such as water (watercart) on disturbed surfaces, vehicle routes, stockpiles and excavations, etc. The use of polymer-based dust suppressants are to be considered, where required. – minimise travel speeds and distances within excavation areas. – minimise drop heights of materials when loading / unloading. – air monitoring is to be undertaken where required and in accordance with the ARTC Lead Management Procedure.	ARTC / site occupier / contractors

Stockpiling Any proposed stockpiling of excavated contaminated material must follow the principles outlined above. Stockpiling must only be undertaken when visible airborne dust is not or not likely to be generated. The following control measures must be adopted: – all stockpiles must be placed away from drainage lines and stormwater infrastructure and include appropriate erosion and sediment and water management controls (see Landcom (2004) *Managing Urban Stormwater: Soils and Construction*); – all stockpiles must be securely covered to minimise surface water infiltration, and to prevent runoff and windborne dust; – all stockpiles must be stored in secure areas and appropriately labelled / signed to ensure that it is not moved, uncovered or intermixed with other material; – stockpile heights are to be kept to a minimum, positioned on level surfaces and bunds constructed to control runoff should this occur; – materials tracking and stockpile management must continue until such time that more permanent measures are put in place; – routine inspections of the stockpiles must be completed on a monthly basis and following rainfall events of > 10 mm within a 24 hour period; and – stockpile rectifications works must occur within a timely manner following any integrity issues / changes.	ARTC / site occupier / contractors
Contaminated soil management Any necessary disturbance and/or reuse of the material must only be undertaken once confirmation has been sought from ARTC environmental representatives and/or a duly qualified professional experienced in contaminated land management. If excavation activities are required, all material excavated should be backfilled in the same location and same order to which it has been excavated. There must be no movement / relocation of soil within the site boundary without advice from a duly qualified professional experienced in contaminated land management. All material to be handled, must be tracked to verify appropriate movement and handling using a materials tracking procedure. The procedure must track materials from cradle-to-grave, and provide detailed information on the origin, quantity and fate of all materials excavated. Records must be maintained by the construction personnel defining chainage of origin, material types loaded and material fate. These records must be consolidated in a register to be maintained by ARTC environmental representatives.	ARTC / site occupier / contractors
Asbestos on soils management A site inspection and hand-picking of potential asbestos containing material fragments must be completed on an annual basis (at minimum) or following events which may erode / expose ACM at the site surface. This is of particular concern within the proximity areas of occupied buildings and operational areas. All personnel whose normal duties present a reasonable likelihood of disturbing or coming into contact with asbestos should complete formal asbestos awareness training.	ARTC / site occupier / contractors
Groundwater management Groundwater must not be extracted for use without prior assessment by a duly qualified professional experienced in contaminated land management to ensure its suitability for use.	ARTC / site occupier / contractors
Waste Management Any soil proposed to be removed from the site should be appropriately managed through the establishment of appropriate erosion and sediment and water management controls (see Landcom (2004) *Managing Urban Stormwater: Soils and Construction*). All soil and groundwater proposed to be removed must be	ARTC / site occupier / contractors

appropriately classified and lawfully disposed (see NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*). The waste hierarchy of avoid, reduce, re-use, recycle, dispose should generally be adopted. Any material to be removed off-site is classified as a waste under the POEO Act, and is to be appropriately classified and managed in accordance with the requirements of the POEO Act. Depending on the material to be removed/disposed, appropriate approvals may be required from the EPA and/or Council. Waste removed should be transported by a suitably licensed waste transporter to a suitably licensed waste facility, and waste tracking should be undertaken for all waste removed.	

6.3 Off-site migration prevention measures

Off-site migration of contamination from areas of concern is considered unlikely. However, the following management measures should be implemented to minimise the movement of contamination within the site and minimise the potential for off-site migration of contamination:

- ***Establishment of exclusion zones on-site*.** To prevent incidental dust generation and migration, the contamination areas must be demarcated as an exclusion zone (refer to Table 6.1), meaning restricting access and movements within this area. Should dust generation be an issue during adverse weather conditions, the application of dust suppression techniques through the use of a water cart and / or a polymer sealant must be considered and applied, where required.

- ***Erosion and sediment control.*** The application of appropriate erosion, sediment and water management controls (see Landcom (2004) *Managing Urban Stormwater: Soils and Construction*) must be implemented, should the discharge of contaminated soils be an issue for the site. An assessment of wastewater and stormwater infrastructure being utilised on the site is required to assess integrity and determine if there are any improvements required to ensure that the infrastructure is not causing pollution or transport of contaminated materials.

- ***Routine hand-picking of ACM***. To prevent the movement of ACM fragments present on the surface of the known contamination area, and to reduce the ACM load across the site, it is recommended that routine ACM hand-picking program be implemented. This should be completed on a biannual basis, and include provisions for additional hand-picking exercises following rainfall events of > 10 mm in a 24 hour period.

6.4 Reporting

Organisations such as GLRPS and their sub-tenants conducting works on-site must comply with this management plan, and keep records of soil excavated, reused or disposed, as well as waste classification certificates and waste disposal documentation, significant environmental incidents, and any environmental data collected as part of their scope of work. This information should be conveyed to ARTC for their records and for action, in addition to reviewing the effectiveness of the EMP.

ARTC should record any information provided, and along with environmental information, use this to determine any additional actions required, and as inputs to the EMP review discussed in Section 6.

Should additional requirements be necessary associated with the nature of the contamination, discussions should be held with the site owner, ARTC and a duly qualified professional experienced in contaminated land management.

7.0 Measurement, evaluation and review

This EMP is not intended to be a static document. It is a working document that requires ongoing review and amendment as site conditions change and as the conceptual site model develops. As previously discussed, this EMP is intended to be temporary until such time that further investigation and/or remediation activities are completed, and the site can be made suitable for its intended land use. Making amendments to this EMP is an important aspect of improving environmental management and is the responsibility of the site ARTC. This section details the audit and review process that should be undertaken.

Any external organisations relying on this EMP should keep records of their management and findings. It is recommended that they provide this information to the ARTC, to enable the effective and ongoing development of this EMP.

7.1 EMP review

This EMP should be reviewed:
- during any proposed works;
- when roles or responsibilities are changed/require updating;
- following significant environmental incidents / complaints;
- when there is new investigation data that triggers an update to this plan;
- where it is highlighted that a particular activity/action is not effective and requires review;
- when there is a need to improve performance in an area of environmental impact; and
- at the completion of any environmental audits.

The review process should include reviewing the environmental controls, monitoring and procedures in use to ensure they remain effective. Any changes to the EMP should be documented, and the original EMP, and subsequent versions should be kept for project records.

It is acknowledged that this EMP is temporary, however it recommended that this EMP be reviewed annually by ARTC as a minimum.

7.2 Record keeping

ARTC shall keep all records associated with the distribution and use of this EMP, including:
- the details of the organisation that conducted the works which affect this EMP;
- the date and form of provision of the EMP; and
- any plans, reports and actions resulting from the works in relation to this EMP.

ARTC is responsible for assigning and documenting individual responsibilities for implementing the environmental controls as discussed in this EMP.

7.3 Modification of this EMP

Any proposed modifications to this EMP should be conducted to the satisfaction ARTC and the relevant regulatory agency.

Any changes to the current site layout, fencing and/or land use will require further assessment and potential modification of this EMP. Advice should be sought from a duly qualified professional experienced in contaminated land management.

7.4 Cessation of this EMP

The requirements of this EMP will be considered unnecessary when further information is available to demonstrate that the risks are no longer present.

8.0 References

Previous environmental investigation reports

Cavvanba (May 2022) *Remediation Options Assessment – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580.*

Cavvanba (May 2022) *Asbestos Management – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580.*

Cavvanba (July 2022) *Groundwater Monitoring Event – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580.*

Cavvanba (August, 2021) *Additional Environmental Site Assessment – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580.*

Cavvanba (January, 2021) *Detailed Site Investigation – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580.*

Cavvanba (September, 2020) *Interim Management Plan – Goulburn Roundhouse, 12 Braidwood Road, Goulburn NSW 2580*.

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EPA (2016) *Designing Sampling Programs for Sites Potentially Contaminated by PFAS: Guidance Document*. EPA, Sydney.

EPA (2016) *Contaminated Land Management: Draft Guidelines for the NSW Site Auditor Scheme (3rd edition)*. EPA, Sydney.

EPA (1995a) *Contaminated Sites: Guidelines for the Vertical Mixing of Soil on Former Broad-acre Agricultural Land*. NSW EPA, Sydney.

EPA (1995b) *Contaminated Sites: Sampling Design Guidelines*. NSW EPA, Sydney.

EPA (1997) *Contaminated Sites: Guidelines for Assessing Banana Plantation Sites*. NSW EPA, Sydney.

EPA (2005) *Contaminated Sites: Guidelines for Assessing Former Orchards and Market Gardens*. NSW EPA, Sydney.

EPA (1999) *Contaminated Sites: Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report*. NSW EPA, Sydney.

EPA (2000) *Environmental Guidelines: Use and Disposal of biosolids products*. NSW EPA, Sydney.

EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*. NSW EPA, Sydney.

EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. NSW DECC, Sydney.

EPA (November 2014) *Waste Classification Guidelines – Part 1: Classifying Waste*. NSW EPA, Sydney, NSW.

EPA (2020) *Consultants Reporting on Contaminated Land*.

Guidelines approved by the EPA

ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, Paper No 4, Canberra.

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Figures

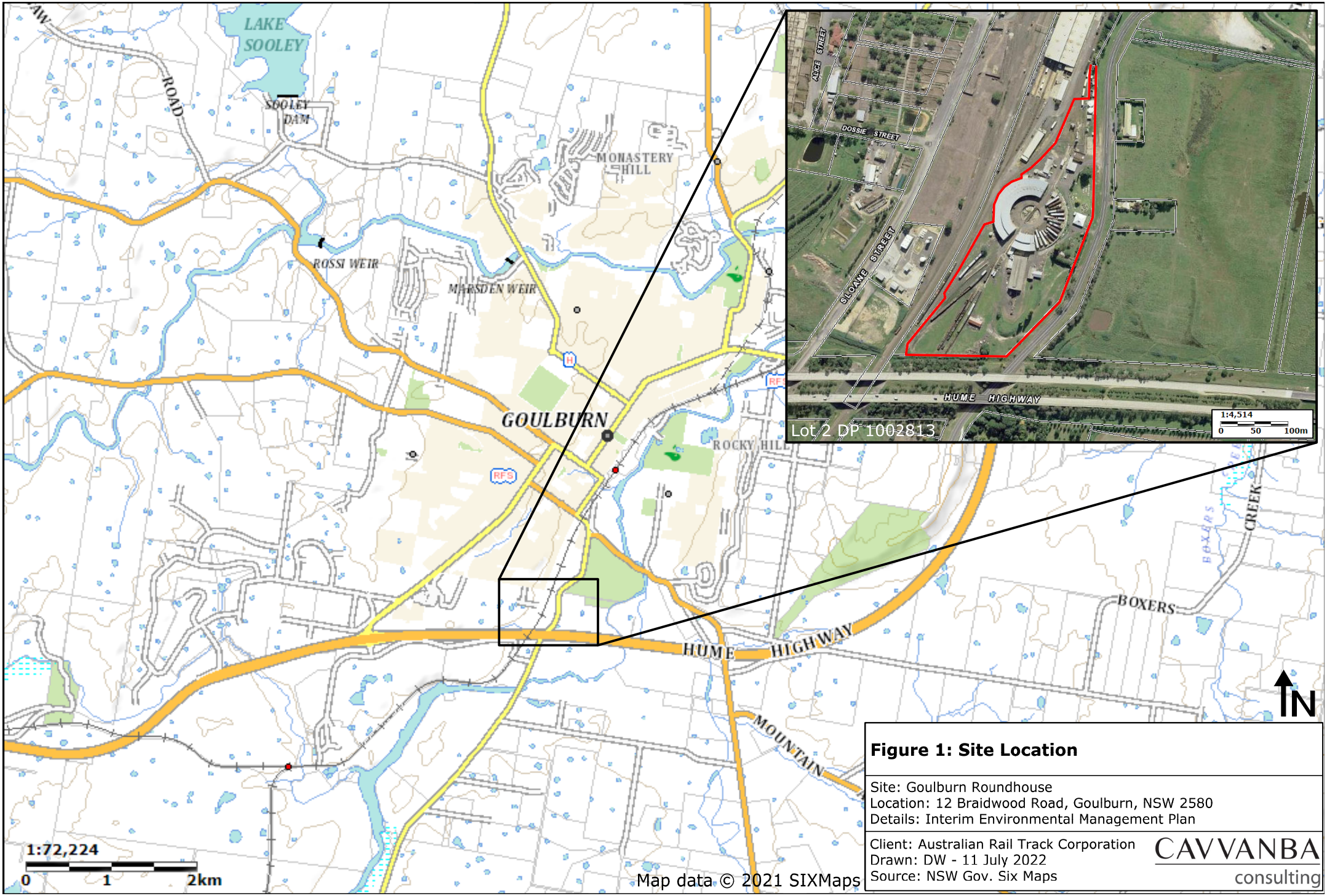

Figure 1: Site Location

Site: Goulburn Roundhouse
Location: 12 Braidwood Road, Goulburn, NSW 2580
Details: Interim Environmental Management Plan

Client: Australian Rail Track Corporation
Drawn: DW - 11 July 2022
Source: NSW Gov. Six Maps

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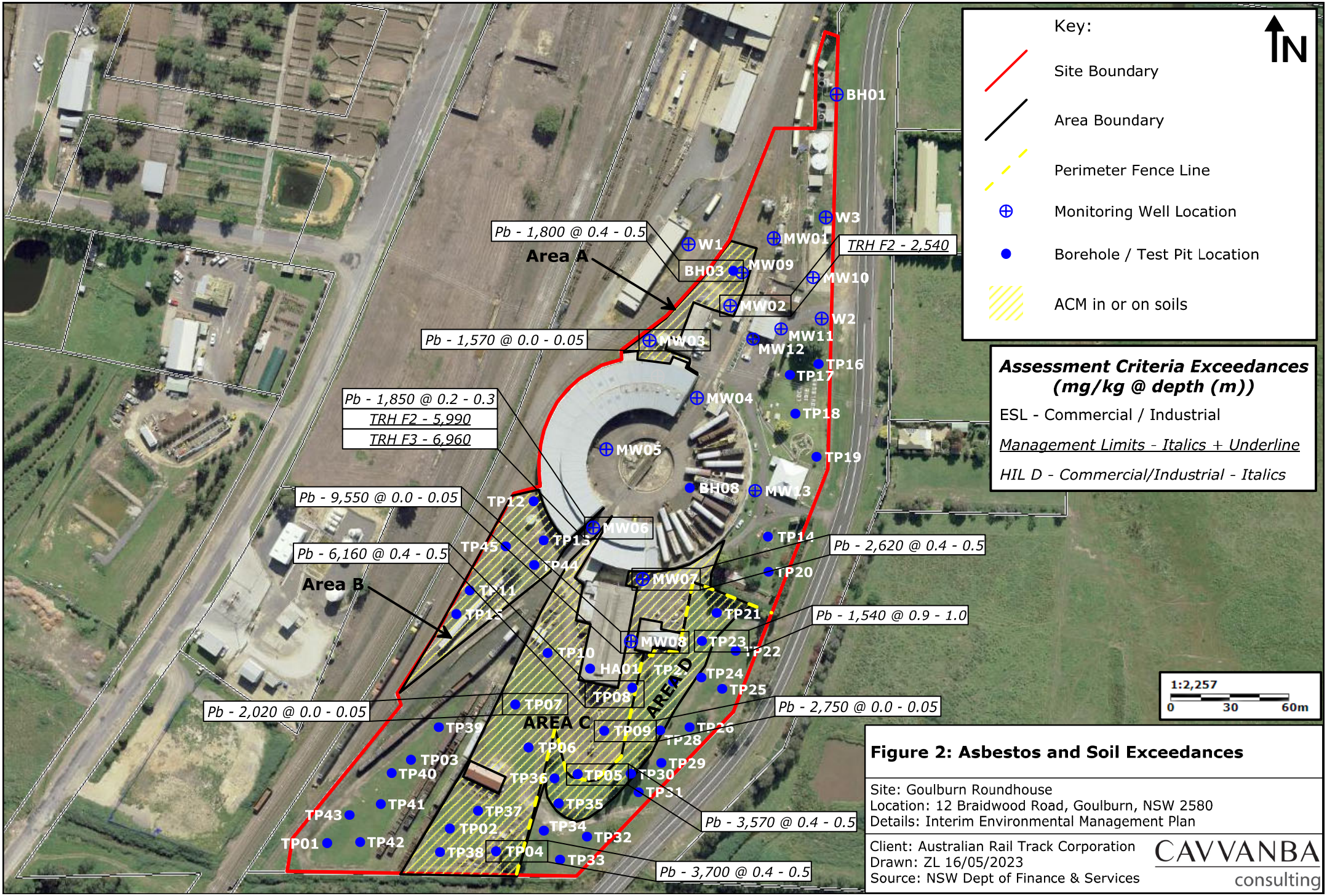

Figure 2: Asbestos and Soil Exceedances

Site: Goulburn Roundhouse
Location: 12 Braidwood Road, Goulburn, NSW 2580
Details: Interim Environmental Management Plan

Client: Australian Rail Track Corporation
Drawn: ZL 16/05/2023
Source: NSW Dept of Finance & Services

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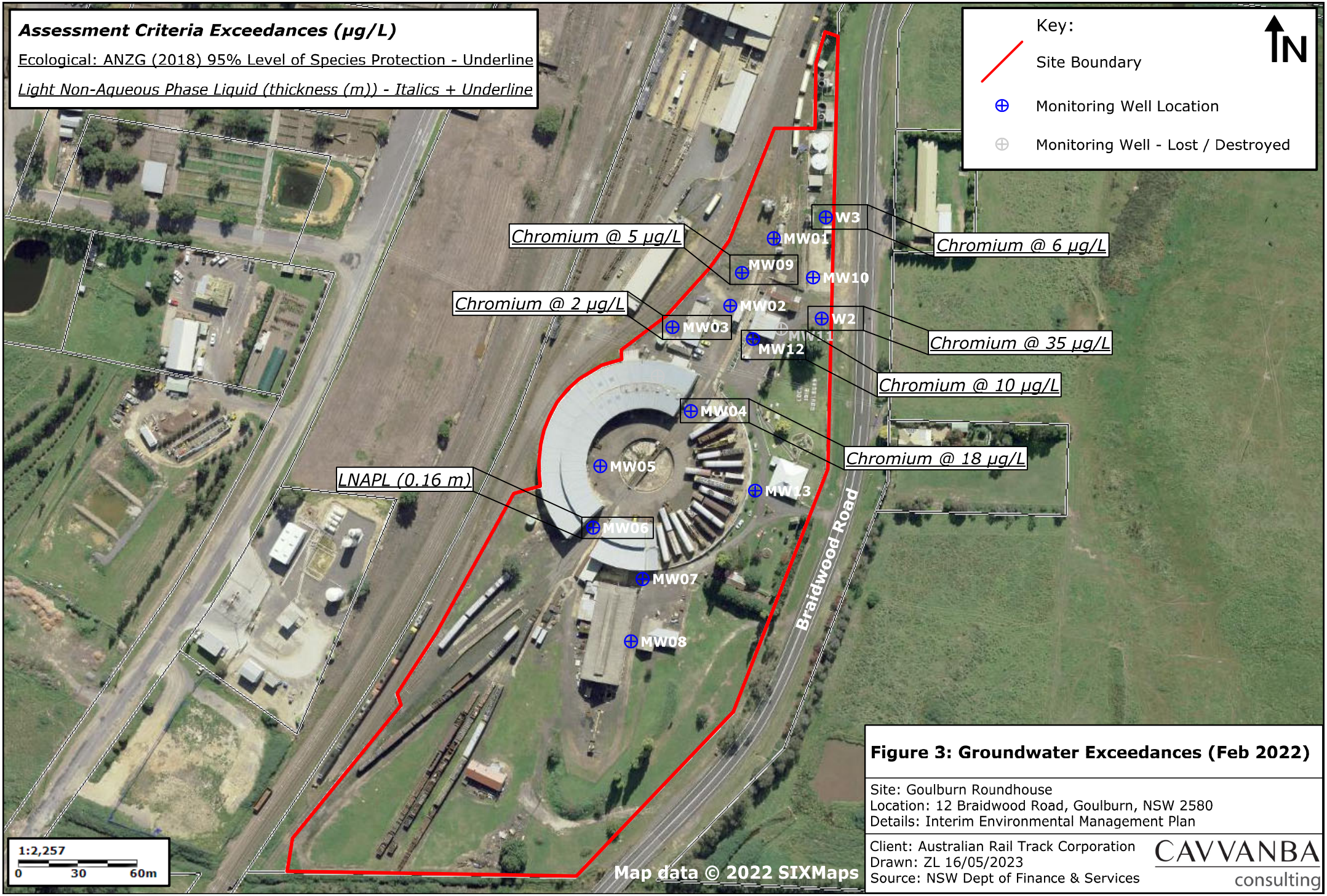

Figure 3: Groundwater Exceedances (Feb 2022)

Site: Goulburn Roundhouse
Location: 12 Braidwood Road, Goulburn, NSW 2580
Details: Interim Environmental Management Plan

Client: Australian Rail Track Corporation
Drawn: ZL 16/05/2023
Source: NSW Dept of Finance & Services

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