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24 February 2025

Mr Stephen Harding
Ginninderry
1 McClymont Way, Strathnairn ACT 2615
PO Box 484, Kippax ACT 2615

Dear Stephen,

Auditor Endorsement of Lanterra (2025) Site Suitability Report for Green Waste Facility, Parkwood Road Recycling Estate

1.0 Background

Ross McFarland was engaged by Riverview Projects (ACT) Pty Ltd (Riverview) and Suburban Land Agency (SLA) (referred to in combination as the "Land Custodian") to be the independent Landuse Auditor (LUA), accredited by the NSW Environment Protection Authority (NSW EPA) under the Contaminated Land Management Act 1997 (Accreditation No. 9819), and endorsed by the ACT Office of the Environment Protection Authority (OEPA), to provide an independent review (in the form of a statutory site audit No.2017/01) of the environmental assessment and remedial works and landuse suitability investigations conducted at Ginninderry development area (GDA) and some adjacent lands, generally known as the "Ginninderry Precinct". The GDA is located to the south-west of the adjacent West Belconnen Resource Management Centre (WBRMC).

From time to time, the LUA is requested by the Land Custodian to provide an Auditor Interim Advice (AIA) that relates to the appropriate completion of an important stage of the GDA's assessment, remediation and redevelopment of the Site.

2.0 Definition of the Site

For the purpose of this AIA, the sub-site within the GDA is defined by the following report:

- Lanterra (2025) 'Site Suitability Report for Green Waste Facility – Parkwood Road Recycling Estate', dated 17 February 2025 (Revision B, document reference P24049).

For completeness, Lanterra (2025) is provided as **Attachment 1** to this letter of endorsement. The sub-site is shown with GPS coordinates in Figure 2A of Lanterra (2025) and is reproduced at **Figure 1** below.

3.0 Sub-site Suitability Investigation (2024 – 2025)

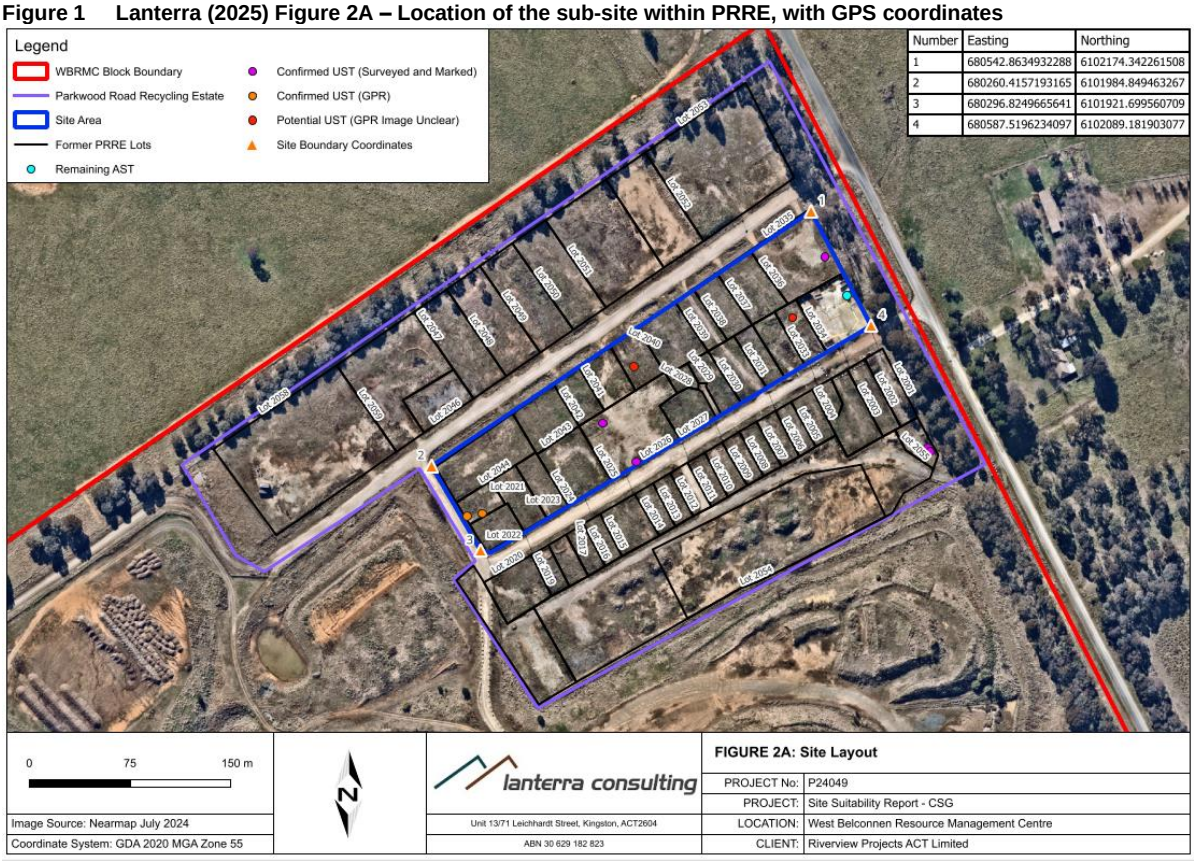
The environmental audit of the WBRMC includes the environmental review a portion of the WBRMC known as the Parkwood Road Recycling Estate (PRRE). The characteristics of PRRE is provided in detail in the report referenced below, but for the purposes of this AIA, the PRRE has been summarised as follows:

- PRRE was a significant waste management and recycling facility located in the West Belconnen area of Canberra, ACT. It was part of the broader WBRMC and played a role in managing various types of waste, including:
    - Electronic waste (e-waste)
    - Bulk greenwaste (but not residential greenwaste)
    - Waste oil collection and recycling
    - Tyre collection and storage for recycling
    - General recycling
    - Hazardous materials, and
    - General commercial storage and maintenance (e.g. bus parking and maintenance).

- The PRRE was not successful as a recycling operation with much of the recycled material left on the surface of the Estate when PRRE leases were withdrawn by ACT Government in January 2021.

A portion of PRRE (the Sub-site) has been earmarked for a proposed green waste facility and associated sales yard. This portion of PRRE is described in Lanterra (2025) Figure 2A, reproduced as **Figure 1** below.

Figure 1 Lanterra (2025) Figure 2A – Location of the sub-site within PRRE, with GPS coordinates



(Source: Lanterra (2025). Note: Lot 2032 is not indicated in Figure 2A but its position may be inferred by the proximity of Lots with adjacent numbering.

The sub-site portion of PRRE contained twenty-four (24) businesses and operational activities, with relevant potentially-contaminating activities described in Table 5 of Lanterra (2025), reproduced as **Table 1** below.

Lanterra (2025) reports that surface cleanup was completed and reported in 2024. This surface cleanup review was accepted by this LUA Site Auditor on 5 December 2024[1]. A subsequent surface removal of asbestos fragments was completed across the sub-site and was reported in Lanterra (2025).

Lanterra (2025) concluded that the sub-site can be made suitable for its intended uses subject to:

- Remedial works to remove the identified and potential underground liquid storage tanks, in accordance with the Auditor-approved Remedial Action Plan (RAP)[2];
- Development and implementation of an Auditor-agreed Construction Environmental Management Plan (CEMP);

[1] AECOM (2024a) Auditor Endorsement (2024) Parkwood Road Recycling Estate, Stage 1 Surface Cleanup Review, dated 5 December 2024.
[2] AECOM (2024b) Auditor Endorsement (2024) Remedial Action Plan for Storage Tanks, Parkwood Road Recycling Estate Block 1586, Belconnen, ACT, dated 11 December 2024.

- Installation of a physical barrier to limit site user exposure with the current ground surface and any potential residual surface contamination.

The Auditor concurs with these conditional conclusions (see **Section 4.0**).

Table 1 Lanterra (2025) Table 5 – Previous landuses by Lot within Sub-site Area

Lot	Previous Site Use
2021	• Worm / worm casting processing facility.
2022	• Storage and sales of firewood. Machinery was stored on Lot.
2023	• Storage of building materials. LPG gas cylinder, paints, acrylic lacquer, and mixed solid waste were stored on site.
2024	• Trash pack business. Machinery maintenance is undertaken on Lot. Fuels, oils and pesticides stored on Lot.
2025	• Materials and machinery storage. Machinery maintenance was undertaken at the Lot. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2026	• Storage of machinery, landscape supplies. Mechanical repairs and light steel fabrication were undertaken on Lot. Tyres and general waste noted on Lot.
2027	• Storage of building materials. Minor ground staining was observed by GHD. Fuel, oil and pesticide tanks notes on Lot. General waste comprising building materials was observed across the site.
2028	• Storage of building materials. Staining on concrete and stormwater pit was noted.
2029	• Car parts and metal recycling business. Lot was previously listed as a landscape and gardening business. Multiple dark stained patches across the site were observed.
2030	• Storage and repair of second-hand building materials for recycling.
2031	• Storage of electrical equipment. Previously a joinery business.
2032	• Storage of trucks and woodchipper.
2033	• Storage and dewatering of waste petroleum products, coolants, oily water and garage vehicles (Truegain).
2034	• Manufacturing and distribution of premixed concrete (Concrite). Fuels, oils and pesticides stored on Lot.
2035	• Storage and dewatering of used cooking oil and fats only.
2036	• Automotive aftermarket parts manufacturing and sales business.
2037	• Asbestos removal business.
2038	• Car parts and metal recycling business.
2039	• Storage and repair of second-hand building materials for recycling.
2040	• No previous site uses available. Oil staining was identified.
2041	• Store, mill and sell firewood. Storage of landscaping supplies.
2042	• Storage for removalist business. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2043	• Storage for removalist business. Machinery storage and maintenance previously undertaken. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2044	• Waste skip business to sort and process household waste for recycling.

The previously identified land uses were predominantly surface-related activities with a low-to-moderate risk of environmental contamination. Some above ground and underground liquid storage tanks were identified in some of the Lots – see recommendations below.

4.0 Auditor Opinion – Proposed Sub-site may be made suitable for its intended use

The LUA completed a detailed review of Lanterra (2025) against current ACT EPA regulatory guidelines. All Auditor review comments were appropriately addressed, and it is the opinion of the LUA that Lanterra (2025) is an acceptable report for the purposes of understanding the current environmental status of PRRE following the surface clean-up.

As noted above, the LUA concurs with Lanterra (2025), that the sub-site **can be made suitable for its intended uses subject to completion of supplementary environmental works, consisting of** :

- Remedial works to remove the identified and potential underground liquid storage tanks, in accordance with the Auditor-approved RAP[3];
- Development and implementation of an Auditor-agreed Construction Environmental Management Plan (CEMP);
- Installation of a physical barrier to limit site user exposure with the current ground surface and any potential residual surface contamination.

At the completion, verification and reporting of the above environmental works, the LUA will be in a position to assess the sub-site's final landuse suitability for the proposed green waste facility.

5.0 EPA Requirements for LUA Information

Consistent with EPA requirements for provision of LUA information and staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, we are required to advise that:

- This letter does not constitute a LUA Site Audit Report (SAR) or Site Audit Statement (SAS).
- This information is considered by the Auditor to be consistent with OEPA guideline and policy requirements.
- This information does not change the current LUA Site Audit Statement and Site Audit Report for GDA in terms of its suitability for its intended purposes.
- This letter does not derogate from any other approval matters that may relate to the Site.

We would be pleased to provide further explanation as to the basis of this letter, at your request.

Yours sincerely,

Ross McFarland
NSW EPA Accredited Site Auditor No. 9819
AECOM Chief Environmental Scientist - ANZ

Encl: Lanterra (2025) 'Site Suitability Report for Green Waste Facility – Parkwood Road Recycling Estate', dated 17 February 2025.

[3] AECOM (2024b) Auditor Endorsement (2024) Remedial Action Plan for Storage Tanks, Parkwood Road Recycling Estate Block 1586, Belconnen, ACT, dated 11 December 2024.

Site Suitability Report for Green Waste Facility –

Parkwood Road Recycling Estate

Prepared for:

The Riverview Projects ACT Limited

17 February 2025

Author	Katie Boulton	
Reviewer	Kelly Lee	
Approver	Chris Gunton	
Date	17/02/2025	
Filename	P24049 PRRE GWF SSR 20250217	
Version	Rev B	

REVISIONS

Revision	Date	Description	Prepared	Approved	Distribution list
Rev A	11/12/2024	Issuance of Rev A	KB	CG	Riverview AECOM PlanIt Spiire
Rev B	17/02/2025	Issuance of Rev B	KB	CG	Riverview AECOM PlanIt Spiire

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Executive Summary

Lanterra Consulting Pty Ltd (Lanterra) was engaged by the Riverview Projects ACT Limited (the Client) as the suitably qualified environmental consultant (SQEC) to prepare a Site Suitability Report (SSR) for the proposed green waste facility and sales yard at the Parkwood Road Recycling Estate (PRRE) (the Site). The site is located within the West Belconnen Resource Management Centre (WBRMC) precinct in Block 1586 Belconnen ACT. The location and layout of the site are illustrated in **Appendix A**: **Figure 1** and **Figure 2A**.

The site investigation area is the area proposed to be a green waste facility and sales yard (**Appendix A: Figure 2B**) and is approximately 30,000 square metres (m^2).

Previous investigations have been undertaken across the PRRE and have identified a range of potential contamination issues associated with the former site use since its establishment in the 1970s as a waste management site. Identified contamination issues included asbestos-containing materials (ACM), a variety of waste (commercial, industrial and construction waste), chemical storage and above and underground storage tanks (ASTs and USTs).

AGH Asbestos Demolition and Removalist (AGH) undertook a surface cleanup of the PRRE from March 2022 to November 2022. The works were undertaken in accordance with the Notice of Decision (NoD) (DA #202037887), which included the demolition and removal of surface structures and associated waste across the PRRE's surface, with the exception of the former concrete plant in Lot 2034 (Concrite). Significant amounts of waste comprising of construction waste, builders waste, general waste, industrial and commercial waste, chemical containers and hazardous materials were removed from the PRRE surface clearance work.

Subsequent surface clearance work at the Site was undertaken by AGH and supervised by Lanterra in November 2024, targeting the Site (proposed green waste facility and yard) as shown in **Appendix A: Figure 2B**. The surface clearance involved an emu-pick of ACM across the site surface, including the former Concrite block that was not included in previous surface clean-up work.

Given the WBRMC precinct (Block 1586) is included in the ACT EPA Contaminated Sites Register and is subject to an on-going environmental audit, the site requires an assessment by an SQEC to determine if the site is suitable for the proposed development, from a contamination perspective. In accordance with the *ACT EPA (2017) Contaminated Sites Environment Protection Policy*, the site suitability assessment shall be supported by the Site Auditor, and the Site Auditor's endorsement submitted to the EPA for review and support.

The scope of work completed for this SSR was as follows:

- Review available previous investigation reports relevant to the SSR (see **Section 4.1**).
- Review aerial photographs to assess site condition since previous investigations were completed (see **Section 4.2**).
- Undertake an investigation for the site that included:
    - Surface clearance of the site to remove potential ACM on the site's surface
- Prepare a site suitability report presenting:
    - Desktop review based on previous investigations reports, and aerial imageries;
    - The results of the surface clearance at the site;

- If any of the site changes will impact the recommendations/outcomes of previous investigations;
- Recommendation if further investigation / remediation is required at the site; and
- A statement concluding the site's suitability for the proposed green waste facility and sales yard at the site.

This SSR was completed to:

- Determine the Site suitability for the proposed green waste facility and sales yard operation from a contamination perspective.
- Determine if further management/recommendations are required for the site for use as a green waste facility and sales yard.

The primary areas of environmental concerns (AECs) assessed in this investigation are based on the AECs identified from reviews of previous assessments (see **Section 4.1**), historical aerial photograph reviews from 2020 to 2024 (see **Section 4.2**), and observations and findings from the site investigation undertaken on the 28th of November 2024 (see **Section 8.1**). The findings of the investigation are identified below:

Table 1 – Summary of findings from site investigation.

AECs	Findings	Conclusions and Recommendations
Former PRRE activities with storage tanks (fuel and/or wastewater tanks)	• Four (4) ASTs were previously on-site, with three (3) large ones at the former Truegain block in Lot 2033. These were removed in May 2022 during Stage 1 surface cleanup. One smaller AST from Lot 2035, which contained recycled vegetable oil was subsequently removed in October 2022 after a spillage event caused by a burglary incident during cleanup work. These were investigated and validated by an SQEC. • Previous investigation at the Truegain block in Lot 2033 included a limited intrusive soil investigation, with five (5) boreholes excavated around ASTs in Lot 2023. The investigation noted that soil on-site was impacted by the oil storage, however no groundwater assessment was undertaken. It was considered that the impact of groundwater was low, and no PFAS substances were detected in any soil samples during the site investigation. No asbestos was observed within the 1 m fill layer identified across the site. It is noted that soil validation was not undertaken after the ASTs were removed. • Following the surface clean-up work at PRRE and the investigation completed by Lanterra in August 2024 (see **Section**	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a remedial action plan (RAP) to remove and validate the USTs and AST identified on-site. ○ Implementation of a Construction Environmental Management Plan (CEMP) prepared by an SQEC with a robust unexpected finds protocol during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk.

AECs	Findings	Conclusions and Recommendations
	4.1.11), a total of five (5) confirmed USTs are on-site, however their conditions and types are unknown. Additionally, two (2) potential USTs were identified using Ground Penetrating Radar (GPR), though the imaging was unclear.	
Former PRRE activities with hazardous materials including ACM across the site (including metal recycling, asbestos removal, waste liquid processing, building material storage, and general chemical storage)	• Previous hazardous materials investigation from 2018 to 2022 (see **Section 4.1**) identified ACM in the forms of fragments, sheet debris, pipe debris, in structures (demountable, office walls). • AGH undertook a Stage 1 Surface Cleanup from March to November 2022. These works involved the demolition and removal of all structures across the area to be occupied as green waste facility and sales yard, with the exception of the Concrite Plant in Block 2034 as it was tenanted. Clearance certificates were issued for this work by an LAA. • Surface clearance works undertaken by AGH and supervised Lanterra on the 28th of November 2024, to ensure any residual ACM remaining from the Stage 1 Surface Cleanup works and the now vacant Concrite Lot were removed from the Site. Approximately 6 kg of ACM were identified and removed from across the whole site. The Site was also observed to have construction materials including plastic, tiles, bricks and concrete across the site surface. A clearance certificate was issued for this work by an LAA. • Based on multiple surface clean-up events that have been inspected and cleared by an LAA, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk.	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a CEMP prepared by an SQEC with a robust unexpected finds protocol is developed and implemented during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk. ○ As a precautionary measure, the development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.
Former PRRE activities potentially impacted the groundwater and potential soil vapour risk (including waste liquid processing, general chemical	• Historical site use may have impacted groundwater conditions on and off-site and may present a soil vapour risk. No assessment was undertaken for this investigation to assess the potential contamination. However, the proposed site use as a green waste facility and sales yard is unlikely to encounter groundwater, therefore, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk. Residual contamination risk can be managed with	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a CEMP prepared by an SQEC with a robust unexpected finds protocol is developed and implemented during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an

AECs	Findings	Conclusions and Recommendations
storage, and mechanical repairs)	site controls provided below.	unacceptable risk. ○ As a precautionary measure, the development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.

Lanterra notes that an RAP has been prepared for the removal of all confirmed and potential AST and USTs (see **Section 4.1.11**), with remediation and validation work to be undertaken prior to the site being used as a green waste facility and sales yard. The contamination risk is expected to be low once the tanks are removed and remediation is completed and validated.

Based on multiple surface clean-up events that have been undertaken by a licensed asbestos removalist, which was subsequently inspected and cleared by an LAA, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk, however, the potential for complete exposure pathways remain. It is noted the proposed green waste facility and sales yard pose a lower contamination risk to potential receptors, when compared to the previous industrial waste recycling activities.

However, Lanterra considers the Site within PRRE as shown in **Appendix A: Figure 2A** can be made suitable for the proposed green waste facility and sales yard operation, subject to the implementation of controls to manage the identified complete exposure pathways as below:

- Remedial works to remove and validate the identified USTs and AST on-site, in accordance with an auditor-approved RAP.
- A Construction Environmental Management Plan (CEMP) with a robust unexpected finds protocol (UFP) developed by an SQEC shall be implemented during construction works, to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk. The UFP shall continue to be implemented when the site operates as a green waste facility and sales yard to manage any potential unexpected contamination risk.
- The development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.

1 Introduction

Lanterra Consulting Pty Ltd (Lanterra) was engaged by the Riverview Projects ACT Limited (the Client) as the suitably qualified environmental consultant (SQEC) to prepare a Site Suitability Report (SSR) for the proposed green waste facility and sales yard at the Parkwood Road Recycling Estate (PRRE) (the Site). The Site is located within the West Belconnen Resource Management Centre (WBRMC) precinct in Block 1586 Belconnen ACT. The location and layout of the site are illustrated in **Appendix A**: **Figure 1** and **Figure 2**.

The Site is approximately 30,000 square metres (m^2) and is currently zoned NUZ3: Hills, ridges and buffer areas. The Site has been marked for future development and under the ACT Territory Plan, is identified as a Future Urban Area (FUA).

1.1 Background

The Site is located within the PRRE, which was formerly occupied by 57 lots with multiple environmental investigations undertaken across the PRRE. The previous investigation identified a range of potential contamination issues associated with the former site use at this location from its establishment in the 1970s as a waste management site. Identified contamination issues included asbestos-containing materials (ACM), waste, chemical storage and above and underground storage tanks (AST & UST) – see **Appendix A: Figure 2A.**

Stage 1 surface cleanup works were undertaken by AGH Asbestos Demolition and Removalist (AGH) from March 2022 to November 2022. Significant amounts of waste comprising of construction waste, builders waste, general waste, industrial and commercial waste, chemical containers and hazardous materials were removed off-site. The former concrete plant in Lot 2034 (Concrite) was excluded from the cleanup works as it was tenanted at the time.

A Licenced Asbestos Assessor (LAA) inspected PRRE following the completion of the Stage 1 cleanup works and provided a clearance certificate. The PRRE has remained vacant since the works, with Concrite vacating Lot 2034 in June 2023.

Subsequent surface clearance work across the Site was undertaken on the 28th of November 2024, including the Concrite lot. The works were undertaken by licenced removalists AGH Asbestos Demolition and Removalist (AGH) and supervised by a SQEC.

1.2 Objectives

The objective of this SSR is as follows:

- Determine the Site's suitability for the proposed green waste facility and sales yard operation from a contamination perspective.
- Determine if further management/recommendations are required for the site for the proposed green waste facility and sales yard development.

1.3 Scope of Work

The scope of work completed for this SSR was as follows:

- Review available previous investigation reports relevant to the SSR (see **Section 4.1**).

- Review aerial photographs to assess site condition since previous investigations were completed (see **Section 4.2**).
- Undertake an investigation for the site that included:
    - Surface clearance of the site to remove potential ACM.
- Prepare a site suitability report presenting:
    - Desktop review based on previous investigations reports, and aerial imageries;
    - The results of the surface clearance at the site;
    - If any of the site changes will impact the recommendations/outcomes of previous investigations;
    - Recommendation if further investigation / remediation is required at the site; and
    - A statement concluding the site's suitability for the proposed green waste facility and sales yard at the site.

1.4 Regulatory Guidelines / Legislation

The investigation and preparation of this report was undertaken with reference to (but not limited to) the following regulatory guidance documents and standards:

- *ACT Government (2024) Information Sheet 4 – Requirements for the Reuse and Disposal of Contaminated Soil in the ACT;*
- *ACT Government (2022) Information Sheet 11 – EPA Report Submission Requirements;*
- *ACT Government (2021) Environmental Standards: Assessment and Classification of Liquid and Non-Liquid Wastes;*
- *ACT EPA (2017) Contaminated Sites Environment Protection Policy;*
- *ACT EPA (2007) General Environment Protection Policy;*
- *Environment Protection Act 1997;*
- *National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended April 2013);*
- *NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017);*
- *NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites; and*
- *WA DOH (2021) 'Guidelines for the Assessment, Rehabilitation and Management of Asbestos-Contaminated Sites in Western Australia' (WA Guideline).*

1.5 Limitations

The findings of the report are based on the Scope of Work outlined above. Lanterra has performed services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

The assessment was limited strictly to identifying typical environmental conditions associated with the subject property area and did not include an evaluation of any other issues.

The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site.

The results of this assessment are based on the site inspection conducted by Lanterra personnel and information provided by the Client or regulatory agencies, including previous investigation reports.

All conclusions and recommendations regarding the property area will be the professional opinions of the Lanterra personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability are made, Lanterra will not assume responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Lanterra, or developments resulting from situations outside the scope of this project.

2 Site Characteristics

2.1 Site Location and Description

The Site is located within the PRRE in the former WBRMC precinct and can be accessed via Sustainability Street off Parkwood Road, Belconnen ACT 2617.

The location and a detailed site plan are presented in **Appendix A: Figure 1 and Figure 2,** with a summary of site details presented in **Table 2** below.

Table 2 – Site Identification Details

Details	Site Information
Address	Sustainability Street off 181 Parkwood Road, Belconnen ACT 2617
Approximate Elevation (m AHD)	558 - 564 m
Approximate GPS coordinates (centre of the PRRE)	Easting: 680419.583 Northing: 6102030.226
Block and Section	Block 1586
Land Zoning	NUZ3 – Hills, ridges and buffer areas, overlayed as FUA – Future Urban Area
Size of the block	~107.9 hectares
Size of the investigation area (PRRE)	~30,000 m^2
Lessee / Owner	ACT Government
Land Custodian / Occupier	ACT NoWaste
Current landuse	Vacant area - Former Parkwood Road Recycling Estate
Future landuse	Green waste facility and sales yard

2.2 Site Description

Prior to being developed in the early 1970s, the PRRE was primarily undeveloped vacant land. Block 1586 was selected to be developed into a landfill, based on historical documents available for the site from the 1970s, which involved assessing the site's suitability as a landfill, from an environmental perspective, including geological and hydrogeological properties of the site[1].

Block 1586 is occupied by the WBRMC precinct, including the landfill, Canberra Sand and Gravel (CSG) composting facility, and the PRRE. The PRRE area includes the Woodbusters Block (Lot 2054), which was historically used for landfilling asbestos waste in buried shipping containers. The PRRE is located in the northeast corner of the WBRMC site.

The PRRE was established in 1975, with multiple operations for commercial, industrial and waste management activities. A survey undertaken in 2006 identified 57 lots at the site, operated by different tenants (see **Appendix A: Figures 4 -5**).

The Site is located within the central portion of the PRRE and is currently vacant, with surface demolition works undertaken in 2022, with the last tenant (Concrite – concrete plant) vacating the site in June 2023. At the time of the surface clearance works undertaken on the 28th of November

[1] L. T. Frazier and Associates (1975) Planning and Development of the West Belconnen Sanitary Landfill Site – Development Report
G. Jacobsen (1978) The Establishment of Leachate Monitoring System at the West Belconnen Landfill Site

2024, all lots were still vacant, and the Site was noted to have moderate to dense vegetation coverage.

The former concrete plant still has residual structures on-site, including wash bays/pits, storage bays for materials, an aboveground storage tank (AST), multiple underground storage tanks (USTs) and ancillary infrastructures. A remedial action plan has been prepared for the remediation and validation of the USTs and AST within the Site (see **Section 4.1.11**).

2.3 Surrounding Land Uses

The Site is located within the PRRE as shown in **Appendix A: Figure 2B**. A summary of the land uses surrounding the Site and PRRE is as follows:

- **North:** The former skippy bin lots are located immediately north of the Site within the PRRE. The ACT/NSW boundary is located along the northern boundary of the site. The area north of the PRRE is predominantly occupied by agricultural grazing paddocks, with Tharwa Sands Quarry located to the north-west and Ginninderra Homestead located north-east of the site.
- **South:** The Woodbuster lot is located immediately south of the Site, with stockpiles of materials still present on the block. The WBRMC is located immediately south of the PRRE. The area further south of the site is occupied by agricultural grazing paddocks, with the residential suburbs of Macnamara, and Strathnairn located further south.
- **East:** The area east of the Site is occupied by the Pace egg farm and horse grazing paddocks, with Ginninderra Creek further east. The residential suburb of Macgregor is located 1.2 km east of the PRRE.
- **West:** The area immediately west of the Site is the former Asbestos Pit within the WBRMC, with further west of the PRRE occupied primarily by agricultural grazing paddocks, with the Murrumbidgee River located further west.

2.4 Sensitive Environments

The nearest sensitive environment is the rural residential properties located in Block 1 Section 2 Macnamara located 30 m from the western boundary of the WBRMC, and approximately 600 m southwest of the site.

A review of the database for Significant Species, Vegetation Communities and Registered Trees by ACT MAPi identified Pink-tailed worm lizards (threatened species) are located south of the PRRE and WBRMC.

The nearest surface water receptors are dams located within the WBRMC, with a network of tributaries within the agricultural paddocks west of the WBRMC that feeds into local farm dams that subsequently flow into the Murrumbidgee River located approximately 1 km west of the site.

2.5 Zoning

Based on the ACT Territory Plan, the site is zoned as NUZ3: Hills, Ridges and Buffer Zones, however the site is also within a future urban area (FUA), which is an overlay of the Territory Plan.

Block 1586 is within a FUA for future urban area development and is within the area of the Belconnen District Policy[2], which included additional assessable land use development for the site including a landfill site, recycling facility, and recyclable materials collection.

The proposed development for the Site as a green waste facility and sales yard, falls under a recyclable materials collection land use, which is a permitted land use for Block 1586 under the Belconnen District Policy.

2.6 Proposed Land Use

It is understood that the site is to be used as a green waste facility and sales yard. The site will be used as a green waste drop-off and grind area, with truck and car parking, a wash out bay, demountable site sheds, and a bunded fuel storage area (pad) to be on-site.

The proposed works for the Site are as below:

- Surface cleanup and set up as part of site establishment.
- Demolition (where required), of minor surface structures at Concrite.
- Construction of temporary site sheds/demountable including temporary ablution blocks.
- Placement/construction of gravel surfaces for driveway, waste drop-off area, truck and car parking area.
- Utility services and stormwater infrastructure installation works (i.e. erosion and sediment control measures including surface water diversion).

It is understood no deep excavation or permanent structures are proposed for the green waste facility.

The proposed site layout is shown in **Appendix A: Figure 2B**.

[2] *ACT Government (2024) Part D District Policies – D2 Belconnen District Policy (8 November 2024)*

3 Site Condition and Environmental Setting

3.1 Topography

The digital topographic map presented in ACTMAPi (available http://www.actmapi.act.gov.au/) indicates that the site elevation ranges from 558m (west) to 564m AHD (east). Based on observations during the site investigation, the site is relatively flat.

3.2 Odours

No olfactory signs of contamination were noted during the site inspections.

3.3 Tanks

At the time of the site inspection on 28th November 2024, only one aboveground storage tank (AST) remained on-site. Based on historical information (see **Section 4.1**), the following tanks were previously on-site:

- Four (4) ASTs were previously kept on-site, and three (3) large ASTs were noted at the former Truegain block in Lot 2033 as reported by (Aurecon, May 2018). These were removed in the Stage 1 surface clean-up works in May 2022.
- One (1) smaller AST in Lot 2035, which contained recycled vegetable oil was subsequently removed in October 2022 after a spillage event caused by a burglary incident during cleanup work (see **Section 4.1.9**).
- Size (6) USTs are located within the PRRE, which have previously been surveyed and pegged on-site during the Stage 1 surface clean-up works. Three (3) of these are located within the Site. The conditions and type of tanks are unknown (e.g. septic or fuel storage, condition and size) – see **Appendix A: Figure 2A.**
- Subsequent investigation using a Ground Penetrating Radar (GPR) identified three (3) additional USTs at the PRRE, with two (2) located within the Site. The conditions and type of tanks are unknown (e.g. septic or fuel storage, condition and size) – see **Appendix A: Figure 2A.**
- A further three (3) USTs may also be present on site. A GPR was used to identify these potential USTs; however, imaging was unclear.

A remedial action plan has been prepared for the remediation and validation of the confirmed and potential USTs and AST within the Site (see **Section 4.1.11**).

3.4 Waste

During the site inspection undertaken as part of the site suitability investigation works on the 28th of November 2024, waste materials relating to the former use of the site as a recycling estate were observed. This included tiles, brick, concrete and plastic found on the surface across the site.

3.5 Hazardous Materials

Previous hazardous materials surveys were undertaken for the PRRE in 2018 and 2022 (see **Section 4.1.10**). Multiple hazardous materials were identified across the PRRE including asbestos-containing materials (ACM), ASTs, lead paint, synthetic mineral fibres, polychlorinated biphenyls, vehicle

batteries, chemical containers, boilers, builders waste, general waste, paint tins, fuel drums and tyres. These wastes and hazardous materials were primarily removed during the Stage 1 surface clean-up work at the PRRE from March 2022 to November 2022.

Other than ACMs, no other hazardous materials were observed on-site during the Site investigation.

3.6 Visible Signs of Contamination

At the time of the site inspection on the 28th of November 2024, ACM fragments were identified on the surface of the ground across the site area (see **Appendix A: Figure 3**).

A review of historical aerial images showed various businesses operating across and stockpiling material across the site. During the initial surface cleanup works undertaken from March 2022 – November 2022, waste material was observed to be stored and sorted in the centre of the site (see **Appendix A: Figures 4-5**).

No other olfactory and/or visual signs of potential contamination were identified.

3.7 Geology and Hydrogeology

The NSW Department of Industry, Resources and Energy shows that the investigation area is underlain by the late Silurian-aged Ludlovian and Wenlockian group comprising of:

- Quartz-feldspar porphyry adamellite granodiorite.
- Walker Volcanics of the Hawkins Volcanic Suite with green to purple dacite ignimbrite and bedded tuff, minor andesite, volcanistic sediment and limestone.
- Laidlaws volcanic of the Laidlaw Volcanics Suite with dark to light grey porphyritic rhyodacite ignimbrite.
- A review of the *Hydrogeological Map of Australia: Commonwealth of Australia* noted the aquifers on-site are fractured or fissured of low to moderate productivity. ACTMAPi reports the site to be located within the Uriarra Road and Gungahlin Hydrogeological Landscape Groups.
- The standing water level measured in the two (2) monitoring wells within the PRRE ranged between 6.69 m below ground level (bgl) in groundwater well BH069D and 9.88 m bgl in groundwater well BH074DA[3]. BH074DA was installed in November 2024 to replace the former BH074D that was damaged during surface cleanup works, which was last measured in June 2021 with a standing water level of 9.88m bgl[4] - see **Appendix A: Figure 6.**

3.8 Soils

The *Soil Landscape of the Canberra 1:100 000 Sheet (Jenkins, 2000)* reported the site to be within the Williamsdale soil landscape group as follows:

- Williamsdale soil type comprised of red and brown Chromosols and Kandosols, shallow Leptic Tenosols and Rudosols, and Brown and Yellow Chromosols to 150 cm, with Brown and Yellow Chromosols and Brown Kandosols at greater than 150 cm. Commonly found on undulating rises, fans, valley flats and depressions on Silurian Volcanics of the Canberra Lowlands.

[3] BH074DA was installed in November 2024 to replace the damaged BH074D, with this standing water level recorded on 6th November 2024. At the time of preparing this report, this report documenting the wells installation and monitoring event is still in progress.
[4] Lanterra Consulting (July 2023) West Belconnen Resource Management Centre – Hatched Area Contaminant Risk and Clearance Zone Assessment (CRCZR) – AEC 2 and AEC 5

4 Site History

4.1 Review of Previous Investigations

A number of previous investigations have been conducted to assess the contamination status of the site including:

- West Belconnen Resource Management Centre – Preliminary Site Investigation (GHD, September 2018);
- Hazardous Materials Report - Parkwood Road Recycling Estate, Parkwood Road Macgregor ACT, Part Block 1586 Belconnen ACT (Keane Environmental, September 2018);
- Stockpile Assessment Report for Stockpiles SP1 – SP13 at Parkwood Road Recycling Estate, 265 Parkwood Road (Robson Environmental, December 2018);
- Lot 2023 Truegain Waste Oils, Belconnen ACT – Preliminary Site Investigation with Limited Sampling (Aurecon, May 2018);
- Parkwood Road Recycling Estate – Rehabilitation Phase 1 PSI (GHD, April 2019);
- Parkwood Road Recycling Estate – Sampling, Analysis and Quality Plan (GHD, March 2020);
- West Belconnen Resource Management Centre, Canberra Sand and Gravel and Parkwood Road Recycling Estate, West Belconnen ACT – Hazardous Materials Survey (GHD, October 2020);
- West Belconnen Resource Management Centre Filling Plan (GHD, July 2021);
- Construction Environmental Management Plan (CEMP) Parkwood Road Recycling Estate Part 1586 Belconnen – AGH Demolition and Asbestos Removal (Lanterra Consulting, March 2022);
- Parkwood Road Recycling Estate – Sampling, Analysis and Quality Plan (GHD, November 2022);
- Parkwood Road Recycling – Stage 1 Rehabilitation Works as Executed Report (AGH Demolition & Asbestos Removal, November 2022). This report included multiple assessments including:
    - Asbestos Clearance Certificate – Parkwood Road Recycling Estate (Keane Environmental, June 2022);
    - Asbestos Clearance Certificate – Parkwood Road Recycling Estate (Keane Environmental, October 2022);
    - Assessment of Drilling Mud, Block 1586 Belconnen ACT (Lanterra Consulting, September 2022);
    - Waste Soil Classification – Parkwood Road Belconnen ACT (Lanterra Consulting, October 2022);
    - Assessment of Hydrovac Drilling Mud, Block 1586 Belconnen ACT (Lanterra Consulting, October 2022); and
    - Validation Report for Former Recycling Facility, Block 1586 Belconnen ACT (Lanterra Consulting, November 2022).
- Parkwood Road Recycling Estate – Stage 1 Surface Cleanup Review (Lanterra November 2024); and
- Remediation Action Plan – Parkwood Road Recycling Estate (Lanterra, November 2024)

Summaries of the *relevant* investigation reports for this site suitability report are provided in the subsequent sections.

4.1.1 Lot 2023 True gain Waste Oils, Belconnen ACT – Preliminary Site Investigation with Limited Sampling (Aurecon, May 2018)

Aurecon was engaged by the Suburban Land Agency (SLA) to undertake an investigation of Lot 2033 located at the eastern end of the site. The investigation was undertaken to assess the site history to identify potential sources of contamination associated with the former waste oil storage and distribution centre. The report was commissioned by SLA based on concerns that PFAS-impacted liquid waste may be stored or processed on the site, as Truegain waste facilities in NSW were found to have been processing wastewater containing PFAS.

The report noted three (3) large vertical storage tanks and two (2) large horizontal storage tanks within a bunded area. The bunded area was in poor condition with the concrete hardstand around the bunded area showing visible signs of staining, degradation and cracks. Waste and oil drums and IBCs were also observed on-site.

A limited intrusive soil investigation was conducted, with five (5) boreholes excavated. No analytes were detected above the adopted commercial/industrial assessment criteria (Health Investigation Level [HIL-D], ASC NEPM 2013[5]). Aurecon reported no asbestos was observed within the 1 m fill layer identified across the site. Samples were also collected from three (3) large ASTs on the site for product identification.

The investigation noted that soil on-site was impacted by the oil storage, however no groundwater assessment was undertaken. It was considered that the impact of groundwater was low, and no PFAS substances were detected in any soil samples during the site investigation. The report recommended the following:

- Drainage and removal of the ASTs on site be supervised by a SQEC.
- Decommissioning and removal of infrastructure on site be undertaken by suitably qualified and licensed contractors and records of waste removal be kept.
- After the removal of infrastructure and tanks, soil validation and waste characterisation be undertaken.

Is it noted this lot is located within the Site covered in this SSR.

4.1.2 Hazardous Materials Report Parkwood Recycling Estate – Part of Block 1586 (Keane Environmental, September 2018 and April 2022)

Keane Environmental (Keane) undertook a hazardous materials survey of the site in September 2018. Lots 2001, 2006, 2025, 2042, 2043 and 2048 were excluded from the assessment due to dense vegetation limiting access.

The following conclusions were made:

- Dense vegetation covered the majority of the blocks and prevented a full inspection.
- Multiple ACMs were identified across the site, in the forms of fragments, sheet debris, pipe debris, in structures (demountable, office walls). Fifty (50) samples were found to contain asbestos over 27 lots out of the 46 lots assessed. It is noted some lots were merged and some lots were not assessed due to access limitations.
- Due to the variety of site levels, fill material is likely to have been imported onto the site.

[5] NEPC (1999) National Environment Protection (Assessment of Site Contamination Measure 1999' as amended 2013 (ASC NEPM 2013)

- ASTs were identified on Lots 2033 and 2035. Three (3) large ASTs on Lot 2033 were recorded as storing fuel, and one (1) AST on Lot 2035 was recorded as storing vegetable oil. One (1) smaller fuel storage tank was identified in Block 2014.
- Lead paint was identified in tanks in Lots 2014 and 2033, and a boiler in Lot 2047.
- Synthetic mineral fibres (SMF) were identified in insulation materials in Lots 2007, 2014, 2023, 2024, 2026, 2027, 2036, 2038, 2041, 2045, 2051 and 2059.
- Polychlorinated biphenyls (PCBs) were identified in Lot 2004, with presumed PCBs identified in Lots 2006, 2014, 2026 and 2041.
- Other hazardous materials identified across the site include vehicle batteries, chemical containers, boilers, builders waste, general waste, paint tins, fuel drums and tyres.

The following site rehabilitation was recommended:

- All hazardous material on the blocks be disposed of as hazardous / contaminated waste and up to 300 mm of soil be removed as contaminated where required. Keane noted that separating materials into waste streams for disposal would be costly and time-consuming.
- All material should be disposed of at the loose-fill asbestos tip at the adjacent site to Parkwood (WBRMC). Approval to dispose of the material at the loose fill site must be sought from the ACT EPA.
- Due to the amount of ACM found on-site; a licensed asbestos removalist must be engaged as part of the rehabilitation process.

4.1.3 West Belconnen Resource Management Centre – Preliminary Site Investigation (GHD, December 2018) and Parkwood Road Recycling Estate – Rehabilitation Phase 1 PSI (GHD, April 2019)

GHD completed a preliminary site investigation (PSI) for the WBRMC (encompassing CSG composting facility) located in Block 1568 in 2018 that included a detailed site inspection, review of existing data and site history and development of a preliminary conceptual site model. Although the PRRE site was excluded from this PSI, interview records were included in the PSI that contained information relevant to the PRRE. It is noted this information was subsequently included in the PRRE PSI completed in April 2019.

The PSIs reported the following relevant to the PRRE:

- The PRRE site was established in 1975. Prior to its establishment, the site was a grassed paddock.
- From 1975 a range of tenants occupied the site. Operations on site included commercial, industrial and waste management activities.
- Between 1991 and 2000 landfill activities included the burial of shipping containers containing asbestos waste in the southern section of the site (e.g. Woodbusters Block – Lot 2054).
- By 2018 most tenants had vacated the site.
- The PSI noted multiple ASTs on-site including in Lots 2009/2010, 2012, 2023, 2026, 2032, 2035, three (3) in Lot 2059, five (5) in Lot 2047 and six (6) in Lot 2033.
- Potential filling activities (uncontrolled fill materials from unknown source) were identified in multiple lots (Lots 2000, 2004, 2006, 2007, 2008, 2012, 2015, 2016, 2020, 2022, 2023, 2024, 2026, 2028, 2031, 2032, 2033, 2036, 2037, 2038, 2039, 2040, 2041, 2044, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2059).

- The reports included an interview with a former ACT NoWaste personnel member in 2018 who advised the following:
    - Regular fires have occurred over the operational period at the tyre trenches, CSG area and the adjacent Woodbusters site in the PRRE. It is not known if firefighting foams were used to manage these events.
    - The Parkwood site included a series of around 5-6 above-ground storage tanks of around 20,000 litres in size for used waste motor oils and one below ground tank associated with the waste oil receival facility. On several occasions during the 1990s and early 2000s all these tanks have been full. There was also a waste oil recycler located in the PRRE estate (Block 2033) that had multiple tanks for oil. Lanterra notes that previous reports documented approximately four (4) AST in PRRE.
    - Hazardous materials were noted to have been accepted and stored in the bunded areas in the 2 large green sheds in the PRRE area prior to these being licenced to PRRE operators, with the largest shed being within the WoodBusters (Block 2054) and the other green shed on Block 2000.
    - The EPA also stored household chemicals in the small facility on Lot 2055 and hazmat drums from clean-up activities.
    - A shed located in the south-east corner of the PRRE (Lot 2000 and 2054) was used for the storage and collection of household chemicals and chemical spill clean-up.
- The PSI site walkover identified a range of potential contamination issues including:
    - Chemical storage;
    - Hydrocarbon staining on surfaces;
    - ACM fragments across the site; and
    - Waste material across the site, which included:
        - Construction waste: Concrete, brick, iron roofing, roofing tiles, metal and wood pallets.
        - Commercial waste: Car parts, tyres, car batteries, and petrol jerry cans.
        - General waste comprising plastic, cans, kegs, and glass
- Significant data gaps were identified around the characterisation of the contamination status of the site, with a range of source-pathway-receptor (SPR) linkages that are potentially complete, posing potential contamination risk.

The PSIs recommended a targeted investigation to address the identified data gaps and assess the SPR linkages.

4.1.4 Parkwood Road Recycling Estate – Sampling Analysis and Quality Plan (GHD, March 2020)

GHD prepared a Sampling, Analysis and Quality Plan (SAQP) for the PRRE site. The PSI undertaken in 2019 identified sources of potential contamination associated with site use (see **Section 4.1.3**). It was recommended a Detailed Site Investigation (DSI) be undertaken to investigate the site from a contamination perspective. This SAQP outlines the methods implemented for the DSI.

A sampling program was developed to target areas of environmental concern and provide information on the overall site condition. The SAQP included a sampling program and analytical plan for the following:

- General site area;
- Stockpiled material;
- Groundwater;

- Landfill gas;
- Off-site surface water and sediment receptor; and
- Background samples.

Lanterra notes that the SAQP was not supported by the Site Auditor, and therefore was not implemented.

4.1.5 West Belconnen Resource Management Centre, Canberra Sand and Gravel and Parkwood Road Recycling Estate, West Belconnen ACT – Hazardous Materials Survey (GHD, October 2020)

GHD completed a Pre-Demolition Hazardous Building Materials Survey and compiled a Hazardous Building Materials Register and report of structures/buildings at the WBRMC, CSG and PRRE.

The primary findings relevant to the PRRE are as follows:

- Potential ACM (electrical switchboard) was identified in Lot 2035.
- Potential Synthetic Mineral Fibre (SMF) was identified in Lot 2035 (roof insulation).

The report recommended the identified hazardous materials be removed in accordance with a demolition management plan, or similar, prior to general demolition works commencing. It is noted that the report was limited to identifying hazardous materials within structures / buildings at the WBRMC, CSG and PRRE, with spills, voids, underground storage tanks and buried shipping containers containing asbestos not identified.

4.1.6 Construction Environmental Management Plan – Parkwood Road Recycling Estate (Lanterra, March 2022)

Lanterra prepared a Construction Environmental Management Plan (CEMP) for AGH for the Stage 1 surface cleanup of the PRRE. The CEMP was prepared to provide the environmental management requirements during Stage 1 cleanup of the site which involved:

- Removal of three (3) above ground fuel tanks and associated infrastructure at Lot 2033;
- Removal of building structures across the PRRE; and
- Complete the removal of waste material from the surface of the site. This includes any hazardous materials such as ACM.

Lanterra notes that this CEMP was not provided to the Site Auditor for review and endorsement.

4.1.7 Parkwood Road Recycling Estate – Sampling Analysis and Quality Plan (GHD, November 2022)

GHD updated the SAQP prepared in 2019 for the DSI proposed for the PRRE. This SAQP was updated as surface clean-up works had been completed across the site, with the majority of debris stockpiles, concrete pads and footers, general surface waste, ASTs and structures removed. GHD noted that Lot 2034 was excluded from the assessment due to the lot being tenanted (e.g. Concrite). The following investigation programs were recommended:

- General Site Areas:
    - Based on a review of site history and site investigations, contamination was considered likely to be present near the surface. A minimum of 172 sampling locations (3 sample locations per lot) were proposed to assess the general site area for the identified CoPCs. This included areas with potential USTs in Lots 2026, 2033 and 2040, and septic tanks/pits in Lots 2005, 2022 and 2026.

- Stockpiles:
    - It was expected that the stockpiles remaining on site would be removed as part of the DSI works and would require waste classification. To assess the stockpiled materials for waste classification, the *ASC NEPM (2013)* and *NSW EPA (2022) Contaminated Land Guidelines: Sampling Design* recommended stockpile sampling frequencies were adopted.

- Groundwater:
    - To characterise groundwater across the site, five (5) groundwater monitoring bores were proposed to be installed to a depth of 16 m below ground level (bgl). Three (3) groundwater monitoring bores were noted to be installed on the southeastern and southwestern site boundary and would be included in the sampling plan (Bore 17, BH069D and BH074D). It is noted these three (3) wells have been monitored prior to this SAQP, from 2019 to 2020.

- Landfill Gas:
    - Landfill gas monitoring was being undertaken as part of the WBRMC rehabilitation works, with landfill gas monitoring bores located along the northern, eastern, southern and southwestern site boundaries. It was proposed that the landfill gas monitoring results be collated from the monitoring undertaken as part of the WBRMC rehabilitation works and results included in the DSI.

GHD also proposed the collection of three (3) background soil samples from areas that have been identified to have little to no fill present, not in close proximity to known storage, use or disposal of chemicals, and no odours or discoloured soil. These samples will be analysed for heavy metals and used to develop site-specific ecological investigation levels (if necessary).

Lanterra notes that as this SAQP was not supported by the Site Auditor, it was not implemented.

4.1.8 Parkwood Road Recycling – Stage 1 Rehabilitation Works as Executed Report (AGH Demolition & Asbestos Removal, November 2022)

AGH prepared a Works as Executed (WAE) Report for the PRRE surface demolition and cleanup works. Demolition and cleanup work undertaken by AGH included:

- Spraying and clearing of overgrown vegetation and blackberry bushes;
- Removal of hazardous materials identified in hazardous materials survey reports;
- Dismantling and removal of all associated buildings, minor structures, engineering infrastructure, concrete slabs, footings, tyres, trees, mulch, and other general waste;
- Recyclable materials such as steel and concrete were separated from general waste for disposal at an approved recycling facility. Non-recyclable waste and asbestos-containing waste were disposed of at the selected landfill cell in the WBRMC.
- Constructed and maintained a haul road ramp and associated stormwater infrastructure to enable access to the WBRMC for waste disposal at the selected landfill cell.
- Construction of new fencing and maintenance of existing fencing along the PRRE boundary.
- of the landfill cell of works completion, including covering the cell with capping materials from the landfill, top-soiling and seeding for grassing.

The WAE report included surveys completed across the site following work completion, waste and materials tracking information, associated asbestos clearance certificates, and environmental reports.

The report also documented the hazardous materials remediation work carried out in each lot, including if there was asbestos removed, and demolition and clearance work completed.

Locations of USTs were marked and surveyed on-site as follows, with all located within the Site, except for the two (2) USTs in Lot 2055:

- Two (2) USTs in Lot 2055.
- Two (2) USTs in Lot 2026.
- One (1) UST in Lot 2019.
- One (1) UST in Lot 2033.

It is noted the WAE report was not provided to the Auditor for review prior to finalisation.

4.1.9 Waste Soil Classification – Parkwood Road, Belconnen (Lanterra, October 2022) & Validation Assessment, Block 1586 Belconnen, ACT (Lanterra, October 2022)

AGH engaged Lanterra to complete a waste classification and validation assessment of soil impacted by recycled oil on part of Block 1586, Belconnen, in an area of the former PRRE. The site used to operate as an oil recycling facility and was demolished as part of the surface cleanup works.

It was reported that a burglary incident caused an AST containing residues of recycled vegetable oil to spill within the site impacting an area of approximately 40 m^2 adjacent to the oil tank. Therefore, remedial and validation works were required to remove the impacted soil from the site.

The objective of the validation assessment was to investigate whether any residual oil contamination may be present in the impacted area upon the completion of the cleanup.

The results of this investigation are summarised as follows:

- A total of 9 m^3 of impacted soil was stripped and stockpiled on the site for assessment. This material was classified as Restricted Soil Waste in accordance with the ACT EPA (2021) *'Environmental Standards: Assessment and Classification of Liquid and Non-liquid Wastes*' and must be disposed of at a suitably licensed facility.
- Palmitic acid, oleic acid and total organic matter were analysed during the first remedial excavation and validation event on 30/08/2022. These components were detected at relatively low concentrations in both validation and stockpile samples and, therefore, were not considered to pose a risk to human health and the environment.
- After the second remedial excavation event (10/10/2022), concentrations of CoPC in validation samples (V4, V5 and V6) were below the laboratory limit of reporting (LOR) and therefore below the adopted criteria for residential land use.
- The concentrations of heavy metals were below the criteria for residential land use in both remedial excavation events (30/08/2022 and 10/10/2022).

Based on the results of this validation assessment Lanterra concluded that the oil spill impact had been successfully remediated and the site was considered suitable for the land uses under the NUZ3 zoning.

Lanterra notes this occurred in Lot 2035, located within the Site.

4.1.10 Parkwood Road Recycling Estate – Stage 1 Surface Cleanup Review (Lanterra Consulting, November 2024)

Lanterra Consulting Pty Ltd (Lanterra) was engaged by the Riverview Projects ACT Limited (the Client) as the SQEC to prepare a Stage 1 Surface Cleanup Review Report following the surface cleanup work undertaken at the PRRE.

A summary of Lanterra's findings from the review of the cleanup works is as follows:

- All above ground structures, with the exception of the former concrete plant in Lot 2034 (Concrite) have been removed from the site. Significant amounts of waste comprising of construction waste, builders waste, general waste, industrial and commercial waste, chemical containers and hazardous materials had been removed off-site.
- Six (6) USTs have been identified on-site and were surveyed and marked on-site. Three (3) additional USTs were subsequently identified using a GPR survey on-site, with three (3) other potential USTs/small pits present on-site. Out of these, five (5) confirmed USTs are located within the Site, with two (2) potential ones.
- The Woodbusters stockpiles and buried shipping containers with asbestos waste remain on-site and require management.
- The surface cleanup work provided access to the exposed soil across the site, to facilitate intrusive investigations.
- A significant data gap exists to characterise the PRRE from a contamination perspective.

Based on the findings of the Surface Cleanup Review, significant data gaps to assess the contamination status of the PRRE were identified. Data gap recommendations made by Lanterra are below:

- Remaining potential USTs on-site should be assessed and verified, including any potential USTs that were not previously identified. All identified USTs should be decommissioned and removed in accordance with relevant ACT guidelines, with the removal documented and validated. Validation reports shall be provided to the landuse auditor for review and endorsement.
- An updated SAQP should be prepared by an SQEC to develop an adequate investigation program to characterise the site as a whole, with targeted investigation in areas with higher risk of contamination (e.g. downstream locations, history of soil staining and large USTs/ASTs). The SAQP shall include investigation for soil, groundwater, surface water (where available) soil vapour and landfill gas. Where necessary, off-site assessments shall be undertaken to determine potential off-site impacts.

4.1.11 Remedial Action Plan – Parkwood Road Recycling Estate (Lanterra, December 2024)

Riverview engaged Lanterra to complete a remedial action plan (RAP) for the storage tanks located at the PRRE.

The RAP was prepared for the remediation of nine (9) confirmed underground storage tanks (USTs), three (3) potential USTs and one (1) AST in the PRRE in the following locations:

Table 3 – Location of Confirmed and Potential USTs

Storage Tanks	Location	Status
Two (2) USTs	Lot 2055	Identified, surveyed and marked in 2022
Two (2) USTs	Lot 2026	
One (1) UST	Lot 2019	
One (1) UST	Lot 2035	
One (1) UST	Lot 2046	Identified via Ground Penetrating Radar (GPR) imaging in August 2024 and surveyed in November 2024
Two (2) USTs	Lot 2022	
One (1) AST	Lot 2034	Identified in Concrite
One (1) potential UST	Lot 2047	GPR imaging in August 2024 showed a potential small UST or pit, however, was unclear.
One (1) potential UST	Lot 2040	
One (1) potential UST	Lot 2033	

Note: Shaded texts denote tanks located within the Site covered under this SSR.

The objective of the RAP was to provide a detailed plan of activities, procedures, contingency measures and objectives to ensure the effective and controlled remediation of USTs and AST at the site, to facilitate closure investigation and future rehabilitation at the WBRMC and PRRE.

4.2 Aerial Photograph Review

A review of aerial photographs for the area was conducted from 2022 to 2024 to appraise the site history and previous Stage 1 surface cleanup works undertaken. It is noted the 2018 PSI reviewed aerial photographs from 1961 to 2017 (see **Section 4.1.3**). Refer to **Appendix A: Figures 4 – 5**.

Table 4 – Summary of Aerial Photographs Review

Year	Review Description
2022 - February	• Some structures appear to have been removed/demolished in the north portion of the site. The structure in Lot 2035 remains. Materials and cars stored in the northern site lots have been removed; however, waste is seen across the surface of Lots 2037, 2039, 2040, 2041 and 2042 (centre of PRRE – the Site). • Some structures remain in the southern portion of the site in Lots 2030, 2028, 2026, 2025, 2024, 2023, and 2022. • ASTs in Lot 2033 appear to be present.
2022 - May	• Wastes are still scattered across the site, with apparent signs of movement and some concrete slabs and vegetation have been removed.
2022 - July	• Most structures on site (excluding the Concrite Lot 2034), have been demolished and removed, with the exception of a structure in the eastern boundary (green shed. • Waste materials are separated, with stockpiles of likely steel, and concrete isolated from general waste observed in the centre of the site (Lots 2026, 2040, 2041, and 2038). • Vegetation has been cleared from the site.
2022 - November	• The site is mostly clear, all structures and waste have been removed from the site. • The Concrite Plant in Lot 2034 appears to still be in operation.
2023 - January	• Moderate vegetation coverage is observed across each cleared Lot. • No significant changes across the site. • Concrite is still present on-site.
2023 - May	• Moderate vegetation coverage is observed across the site.
2023 - December	• The Concrite plant Lot (2034) has been vacated, and most structures on the Lot have been removed. An above-ground storage tank is observed in the former Concrite plant.
2024 - July	• The site remains unchanged.

4.3 Previous Site Activities

A list of the various business and operational activities undertaken across the Site within PRRE proposed for the green waste facility and sales yard development is provided below in **Table 5**.

Table 5 – Previous Site Activities as Described in GHD (2018) Stage 1 PSI.

Lot	Previous Site Use
2021	• Worm / worm casting processing facility.
2022	• Storage and sales of firewood. Machinery was stored on Lot.
2023	• Storage of building materials. LPG gas cylinder, paints, acrylic lacquer, and mixed solid waste were stored on site.
2024	• Trash pack business. Machinery maintenance is undertaken on Lot. Fuels, oils and pesticides stored on Lot.
2025	• Materials and machinery storage. Machinery maintenance was undertaken at the Lot. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2026	• Storage of machinery, landscape supplies. Mechanical repairs and light steel fabrication were undertaken on Lot. Tyres and general waste noted on Lot.
2027	• Storage of building materials. Minor ground staining was observed by GHD. Fuel, oil and pesticide tanks notes on Lot. General waste comprising building materials was observed across the site.
2028	• Storage of building materials. Staining on concrete and stormwater pit was noted.
2029	• Car parts and metal recycling business. Lot was previously listed as a landscape and gardening business. Multiple dark stained patches across the site were observed.
2030	• Storage and repair of second-hand building materials for recycling.
2031	• Storage of electrical equipment. Previously a joinery business.
2032	• Storage of trucks and woodchipper.
2033	• Storage and dewatering of waste petroleum products, coolants, oily water and garage vehicles (Truegain).
2034	• Manufacturing and distribution of premixed concrete (Concrite). Fuels, oils and pesticides stored on Lot.
2035	• Storage and dewatering of used cooking oil and fats only.
2036	• Automotive aftermarket parts manufacturing and sales business.
2037	• Asbestos removal business.
2038	• Car parts and metal recycling business.
2039	• Storage and repair of second-hand building materials for recycling.
2040	• No previous site uses available. Oil staining was identified.
2041	• Store, mill and sell firewood. Storage of landscaping supplies.
2042	• Storage for removalist business. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2043	• Storage for removalist business. Machinery storage and maintenance previously undertaken. Lot was excluded from the GHD 2018 site inspection (tenant was still on-site at the time of inspection).
2044	• Waste skip business to sort and process household waste for recycling.

Note: the above are based on the PSI completed for the PRRE in 2018 (see **Section 4.1.3**)

The GHD (2018) Stage 1 PSI also noted potential ACM in Lots 2023, 2029, 2030, and 2031.

5 Preliminary Conceptual Site Model

Conceptual site models (CSM) are a method of presenting site contamination information and the relationships between sources of contamination, how it may have been introduced to the site, possible pathways for contaminant migration and exposure and the receptors that may be affected by contaminants.

Based on the information reviewed prior to conducting any intrusive investigation, this CSM has been developed to assist with generating AECs based on the risk of contamination being present and the potential for exposure pathways.

5.1 Areas of Environmental Concern

Based on the review of site history, previous investigations reports, and historical aerial images from 2018 – 2024 (see **Section 4.2**), the surface clearance works completed and Lanterra's site observations (see **Section 8.1**), the AECs identified for this investigation are as below:

- Former PRRE activities with storage tanks (fuel and / or wastewater tanks).
- Former PRRE activities with hazardous materials including ACM across the site.
- Former PRRE activities potentially impacted the groundwater and potential soil vapour risk.

5.2 Contaminants of Potential Concern

Based on the previous surface clearance works and previous site investigations, the following COPCs were identified:

Table 6 – Summary of CoPCs

AECs	CoPCs
Former PRRE activities with storage tanks (fuel and/or wastewater tanks)	• Heavy metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Mercury, Zinc); • Polycyclic Aromatic Hydrocarbon (PAHs) and Phenols; • Total Recoverable Hydrocarbon (TRH); • Polychlorinated biphenyls (PCBs); • Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN); • PFAS (per- and polyfluoroalkyl substances); • Polybrominated Diphenyl Ethers (PBDE); • Nutrients and Pathogens; • Volatile Organic Compounds (VOCs); and • Asbestos
Former PRRE activities with hazardous materials including ACM across the site (including metal recycling, asbestos removal, waste liquid processing, building material storage, and general chemical storage)	• Heavy metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Mercury, Zinc); • Polycyclic Aromatic Hydrocarbon (PAHs) and Phenols; • Total Recoverable Hydrocarbon (TRH); • Polychlorinated biphenyls (PCBs); • Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN); • PFAS (per- and polyfluoroalkyl substances); • Volatile Organic Compounds (VOCs); • Organochlorine Pesticides (OCPs), Organophosphate Pesticide (OPPs); and • Hazardous materials including asbestos, Synthetic Mineral Fibres (SMF) and lead paints.

AECs	CoPCs
Former PRRE activities potentially impacted the groundwater and potential soil vapour risk (including waste liquid processing, general chemical storage, and mechanical repairs)	• Heavy metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Mercury, Zinc); • Polycyclic Aromatic Hydrocarbon (PAHs) and Phenols; • Total Recoverable Hydrocarbon (TRH); • Polychlorinated biphenyls (PCBs); • Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN); • PFAS (per- and polyfluoroalkyl substances); • Volatile Organic Compounds (VOCs); and • Organochlorine Pesticides (OCPs), Organophosphate Pesticide (OPPs).

5.3 Exposure Pathways and Receptors

For a contaminant to pose a risk to either human health and/or the environment, there must be a complete or potentially complete pathway that links the contaminant with the receptor. Identified receptors at the site are as follows:

- On-site workers associated with the current and future use of the site.
- Future users associated with the proposed landuse.
- Ecological receptors including groundwater, surface water, flora and fauna.

Common pathways for contaminants to migrate through the environment and result in exposure to receptors are summarised in the table below.

Table 7 – Conceptual Site Model

Source	Pathway	Exposure Pathway Complete or Potentially Complete (Yes/No)	Potential Receptors	Comments
Soil	Direct contact with soil including dermal contact and ingestion	Yes – Potentially complete	• On-site users • On-site workers • Future on-site users • Future workers • Ecological receptors.	Based on the historical use of the site and stage 1 surface cleanup works completed in 2022, a significant amount of waste and potentially contaminating materials were stored and subsequently removed from the surface of the site, which may have impacted the soil conditions on-site. No investigation was undertaken to assess the potential contamination which may pose an unacceptable contamination risk to receptors since the site underwent Stage 1 Surface Cleanup works from March 2022 to November 2022.

Source	Pathway	Exposure Pathway Complete or Potentially Complete (Yes/No)	Potential Receptors	Comments
Groundwater and Surface Water	Direct contact with groundwater / surface water including dermal contact and ingestion	Yes – Potentially complete	• On-site users • On-site workers • Future on-site users • Future workers • Ecological receptors.	The historical use of the site may have impacted the groundwater and surface water conditions on-site/off-site. No investigation was undertaken to assess the potential contamination which may pose an unacceptable contamination risk to receptors.
Hazardous Materials	Inhalation of Asbestos Fibres	Yes – potentially complete	• On-site users • On-site workers • Future workers • Future site users • Faunas	The Stage 1 Surface Cleanup works undertaken in 2022 removed ACM across the site surface, with a site investigation and clearance undertaken by an LAA. ACM may be present at depth across the site which may pose unacceptable contamination risk to receptors.
Gases and Vapor	Inhalation of vapour	Yes – potentially complete	• On-site users • On-site workers • Future workers • Future residents	Volatile contaminants may have impacted the site condition based on the historical use of the site. No investigation was undertaken to assess the potential contamination which may pose unacceptable contamination risk to receptors. There is also a potential risk associated with hazardous ground gas (landfill gas) migrating from buried waste at the WBRMC.

6 Data Quality Objectives

This section outlines the data quality objectives (DQOs) applied to the investigation.

The DQO process is a planning tool that relies on scientific methods for establishing criteria for data quality and for designing data collection programs. The DQO defines the experimental process required to test a hypothesis. The DQO process aims to ensure that efforts relating to data collection are cost-effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

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

Step 1: State the Problem – concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem;

Step 2: Identify the Decision – identify what questions the study will attempt to resolve, and what actions may result;

Step 3: Identify the Inputs to the Decision – identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement;

Step 4: Define the Study Boundaries – specify the time periods and spatial area to which decisions will apply. Determine when and where data should be collected;

Step 5: Develop a Decision Rule – define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions;

Step 6: Specify Tolerable Limits on Decision Errors – define the decision maker's tolerable decision error rates based on a consideration of the consequences of making an incorrect decision; and

Step 7: Optimise the Design –evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.

The DQOs derived for the investigation are presented in **Table 8.**

Table 8 – DQOs derived for the SSR

Step	Details
Step 1: State the Problem	The site is proposed for a green waste facility and sales yard. The site has been previously used as a recycling estate with multiple businesses operating across the site, which may have introduced contamination. Stockpiling and sorting of materials were also undertaken on the site during the Stage 1 Surface Clean Up in 2022, creating a potential contamination risk.
Step 2: Identify the Decision	A site suitability investigation is required to determine if the site is suitable for the proposed green waste facility and sales yard, from a contamination perspective.
Step 3: Identify the Inputs into the	• Review of site history including previous investigations reports (see **Section 4.1**). • Review of historical and recent aerial photographs for the area (see **Section**

Step	Details
Decision	**4.2**). • Site inspections and surface clearance completed by AGH and supervised by Lanterra on the 28th of November 2024 (see **Section 8.1**).
Step 4: Define the Site Boundaries	The site boundary is restricted to the boundary of the proposed green waste facility and sales yard – see **Appendix A: Figure 2B**. The vertical boundary of the site investigation is limited to the surface of the site. This temporal boundary for the site suitability investigation is from November 2024 to January 2025, with the site investigation completed in November 2024.
Step 5: Develop a Decision Rule	• Did the site inspection and review of previous environmental investigations identify any unacceptable contamination risks? • Did the site inspection and review of previous environmental investigations warrant any cause for further investigation? • Is the Site suitable for the proposed development at its present state without further work?
Step 6: Specify Tolerable Limits	The tolerable limits for the investigation are as follows: • Data obtained from previous investigations were reliable and acceptable. • Any visual or olfactory signs of contamination observed at the time of site inspection were removed by a licenced asbestos removalist and a clearance certificate shall be provided by an LAA.
Step 7: Optimise the Design	The investigation program for this site suitability investigation is detailed in the above sections and outlined in the scope of works.

7 Assessment Criteria

The validation criteria for the area proposed to be used as a green waste facility and sales yard would be as follows based on the potential exposure scenario for soil:

- *NEPC (1999) National Environment Protection (Assessment of Site Contamination Measure 1999' as amended 2013* (hereafter ASC NEPM 2013).
  - Health Investigation Levels (HIL) for Commercial / Industrial Sites (HIL D) – Table 1A(1) of ASC NEPM 2013.
  - Health Screening Levels (HSL) for Commercial / Industrial sites (HSL D) for a sand lithology and a depth of 0 m to <1 m below ground level for soil vapour HSLs for vapour intrusion – Table 1A(3) of ASC NEPM 2013 (most conservative soil and depth criteria).
  - Ecological Investigation Levels (EIL) for aged contaminants on Commercial / Industrial use – Table 1B(5) of ASC NEPM 2013.
  - Ecological Screening Level (ESL) for TPH fractions in soil on Commercial / Industrial use – Table 1B(6) of ASC NEPM 2013.
  - Management Limits for commercial and industrial use – Table 1B(7) of ASC NEPM 2013.
- *HEPA (2020) PFAS National Environmental Management Plan 2.0 (NEMP 2.0)*
  - Human-health investigation levels for soil – Commercial and Industrial – Table 2 of PFAS NEMP 2.0.
  - Ecological guidelines values for soil – ecological direct exposure for all land uses – Table 3 of PFAS NEMP 2.0.
- *USEPA Regional Screening Level – Nitrate*
  - No assessment criteria are available for nitrate assessed in this investigation. Therefore, the USEPA regional screening levels for industrial soil (0.1 hazard quotient) have been adopted for this investigation.

These criteria are shown in **Table 9**.

Table 9 – Assessment criteria for the proposed green waste facility and sales yard

Contaminant Group	HIL/HSL – D (mg/kg)	Management Limits – Commercial Industrial (mg/kg)	EIL/ESL- Commercial Industrial (mg/kg)
Heavy Metals			
Arsenic	3,000	-	160
Cadmium	900	-	-
Chromium (VI)	3,600	-	530*
Copper	240,000	-	140
Lead	1,500	-	1,800
Nickel	6,000	-	-
Zinc	400,000	-	55
Mercury	730	-	-
TRH/BTEX/PAH			
F1	260	800	215
F2	NL	1,000	170
F3	-	5,000	2,500
F4	-	10,000	6,600
Benzene	3	-	95

Contaminant Group	HIL/HSL – D (mg/kg)	Management Limits – Commercial Industrial (mg/kg)	EIL/ESL- Commercial Industrial (mg/kg)
Toluene	NL	-	135
Ethylbenzene	NL	-	185
Xylene	230	-	95
Naphthalene	NL	-	370
Carcinogenic PAHs (as BaP TEQ)	40		0.7
Total PAHs	4,000		
PCBs & PBDE			
PBDE Flame Retardants (Br1Br9)	10		
PCBs Total	7		
OCPs / OPPs			
Chlorpyrifos (Chlorpyrifos Ethyl)	2,000		
DDT+DDE+DDD	3,600		
Aldrin and dieldrin	45		
Chlordane	530		
Endosulfan	2,000		
Endrin	100		
Heptachlor	50		
HCB	80		
Methoxychlor	2,500		
Mirex	100		
Toxaphene	160		
2,4,5-T	5,000		
2,4-D	9,000		
MCPA	5,000		
MCPB	5,000		
Mecoprop	5,000		
Picloram	35,000		
Atrazine	2,000		
Bifenthrin	4,500		
Speciated Phenols			
Phenol	240,000		
3/4-methyl phenol (m/p-cresol)	25,000		
Pentachlorophenol	660		
PFAS			
PFOA	50	-	10
PFHxS + PFOS	20	-	-
PFOS	-	-	1
Asbestos			
Bonded ACM	0.05%		
FA and AF (friable asbestos)	0.001%		
All forms of asbestos	No visible asbestos in surface soil		

Notes:

- PFOS denotes Perfluorooctanesulfonic acid
- PFOA denotes Perfluorooctanoic acid
- PFHxS denotes Perfluorohexanesulphonic acid

*ESL for Carcinogenic PAH provides concentration for Benzo(a)pyrene only.

8 Results of Surface Clearance

8.1 Site Observations

An SQEC by Lanterra supervised the surface clearance work at the site on the 28th of November 2024, with the following site observations:

- Surface clearance work was undertaken by a licensed asbestos removalist (AGH), supervised by Lanterra on the 28th of November 2024. A clearance area was identified and demarcated based on the proposed area to be occupied by the green waste facility and sales yard. The clearance work was limited to the surface of the site.
- The clearance area of approximately 30,000 m^2 was emu-picked and raked by a team of licensed asbestos removalists under the supervision of an SQEC. Approximately 6 kg of bonded ACM sheet debris was identified across the surface of the site and removed by AGH[6].
- ACM findings were spread across the entire site, with the majority of the ACM sheet debris (including large fragments) from the former Concrite Lot 2034.
- Anthropogenic materials such as brick, tiles, and plastic were observed on the surface of the site.
- An LAA undertook a clearance inspection of the site and issued a clearance certificate for the site area (see **Appendix B**).

Site photographs are shown in **Appendix C.**

8.2 Asbestos Clearance

A clearance by a licensed asbestos assessor (LAA) from Keane Environmental, (LAA licence number LAA001255) was undertaken as follows:

- Following the emu-pick of the site area on the 28th of November 2024, a visual clearance inspection was undertaken by a licensed asbestos assessor of the site. This visual clearance inspection was undertaken to verify the ACM fragments were removed and found no visible asbestos residue within the clearance area**.**
- An asbestos clearance certificate was issued for the surface of the site, with a note that asbestos may still be buried at depth.

These asbestos clearance certificates are included in **Appendix B.**

[6] Fragments collected was weighed by Lanterra on-site.

9 Updated Conceptual Site Model

Based on the results of this investigation, the CSM has been revised to reflect information obtained from the site investigation.

Table 10 – Updated Conceptual Site Model

Pathway	Contaminants of Concern	Exposure Pathway Complete or Potentially Complete (Yes/No)	Potential Receptors	Comments
Direct contact with soil including dermal contact and ingestion	TRH, BTEX, PAH, Heavy metals, Phenols, Asbestos	Yes – potentially complete	• Future workers • Future site users • Ecological receptors.	ACM and anthropogenic waste were formerly identified on site, there is a likelihood that residual waste remained on-site and may pose a risk to receptors, if a complete exposure pathway is present.
Direct contact with groundwater / surface water including dermal contact and ingestion	TRH, BTEX, PAH, Heavy metals, Phenols	No - Incomplete	• Future workers • Future site users • Ecological receptors.	The historical use of the site may have impacted the groundwater and surface water conditions on-site/off-site. No investigation was undertaken to assess the potential contamination which may pose an unacceptable contamination risk to receptors. The proposed site development as a green waste facility and sales yard with no proposed excavation is unlikely to encounter groundwater. Surface water was not encountered on-site, with the site being relatively flat with proposed development expected to include stormwater controls and measures.
Inhalation of Asbestos Fibres	Asbestos	Yes – potentially complete	• Future workers • Future site users • Faunas	The surface clearance works removed ACM identified across the site surface, with a site clearance provided by an LAA. ACM may be present at depth across the site that may pose an unacceptable

Pathway	Contaminants of Concern	Exposure Pathway Complete or Potentially Complete (Yes/No)	Potential Receptors	Comments
				contamination risk to receptors, however the proposed green waste facility and sales yard activities will not involve work at depth at the Site.
Inhalation of vapour	TRH, BTEX	Yes – potentially complete	• On-site users • On-site workers • Future workers • Future site users	Volatile contaminants may have impacted the site condition based on the historical use of the site. No assessment was undertaken for this investigation to assess the potential contamination which may pose an unacceptable contamination risk to receptors. There is also a potential risk associated with hazardous ground gas (landfill gas) migrating from buried waste at the WBRMC.

10 Conclusions and Recommendations

Lanterra Consulting Pty Ltd (Lanterra) was engaged by the Riverview Projects ACT Limited (the Client) as the suitably qualified environmental consultant (SQEC) to prepare a Site Suitability Report (SSR) for the proposed green waste facility and sales yard at the Parkwood Road Recycling Estate (PRRE) (the Site) – see **Appendix A**: **Figure 2A.**

This SSR was completed to:

- Determine the Site suitability for the proposed green waste facility and sales yard operation from a contamination perspective.
- Determine if further management/recommendations are required for the site for use as a green waste facility and sales yard.

Review of previous investigations and site inspections has identified uncertainties in the environmental contamination status of the site that could potentially create complete exposure pathways that would make the site unsuitable in its current condition. Review of previous investigations identified the following recommendations for further works at the site (PRRE) – see **Section 4.1** :

- Identification and removal of AST and USTs in accordance with relevant ACT guidelines;
- Removal of hazardous materials, including ACMs;
- Update SAQP to develop an adequate investigation program to characterise the PRRE as a whole, with targeted investigation in areas with high risk of contamination (USTs). SAQP should include an investigation for soil, groundwater, surface water, soil vapour and landfill gas.

An RAP has been prepared outlining the remediation and validation for the identification and removal of a total of nine (9) confirmed USTs within the PRRE, and an additional three (3) potential USTs (see **Section 4.1.11**). It is noted out of these USTs and potential USTs, five (5) USTs are confirmed to be within the Site, with an additional two (2) unconfirmed USTs (poor GPR imaging). Prior to site use as a proposed green waste facility and sales yard, the remediation and validation of all identified and potential USTs is required.

Hazardous materials including ACMs were removed from the site as part of the Stage 1 Surface Clean-up Works at the PRRE with clearance certificates provided by an LAA (see **Section 4.1.10**). Further emu-pick across the surface of the site was undertaken in November 2024 by a licenced asbestos removalist, with a clearance certificate provided by an LAA. However, contaminants may remain present beneath the site surface, which may present risks to site users through contact with groundwater, soil or gases and vapours. Targeted investigations have not been undertaken as part of this SSR. Therefore, a potential complete exposure pathway to contaminants may still be present and will require management.

The primary AECs assessed in this investigation are based on the AECs identified from reviews of previous assessments (see **Section 4.1**), historical aerial photograph reviews from 2020 to 2024 (see **Section 4.2**), and observations and findings from the site investigation undertaken on the 28th of November 2024 (see **Section 8.1**)**.** The AECs and associated findings are identified below:

Table 11 – Summary of findings from site investigation.

AECs	Findings	Conclusions and Recommendations
Former PRRE activities with storage tanks (fuel and/or wastewater tanks)	• Four (4) ASTs were previously on-site, with three (3) large ones at the former Truegain block in Lot 2033. These were removed in May 2022 during Stage 1 surface cleanup. One smaller AST from Lot 2035, which contained recycled vegetable oil was subsequently removed in October 2022 after a spillage event caused by a burglary incident during cleanup work. These were investigated and validated by an SQEC. • Previous investigation at the Truegain block in Lot 2033 included a limited intrusive soil investigation, with five (5) boreholes excavated around ASTs in Lot 2023. The investigation noted that soil on-site was impacted by the oil storage, however no groundwater assessment was undertaken. It was considered that the impact of groundwater was low, and no PFAS substances were detected in any soil samples during the site investigation. No asbestos was observed within the 1 m fill layer identified across the site. It is noted that soil validation was not undertaken after the ASTs were removed. • Following the surface clean-up work at PRRE and the investigation completed by Lanterra in August 2024 (see **Section 4.1.11**), a total of five (5) confirmed USTs are on-site, however their conditions and types are unknown. Additionally, two (2) potential USTs were identified using Ground Penetrating Radar (GPR), though the imaging was unclear.	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a remedial action plan (RAP) to remove and validate the USTs and AST identified on-site. ○ Implementation of a Construction Environmental Management Plan (CEMP) prepared by an SQEC with a robust unexpected finds protocol during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk.
Former PRRE activities with hazardous materials including ACM across the site (including metal recycling, asbestos removal, waste liquid processing,	• Previous hazardous materials investigation from 2018 to 2022 (see **Section 4.1**) identified ACM in the forms of fragments, sheet debris, pipe debris, in structures (demountable, office walls). • AGH undertook a Stage 1 Surface Cleanup from March to November 2022. These works involved the demolition and removal of all structures across the area to be occupied as green waste facility and sales yard, with the exception of the Concrite Plant in Block 2034 as it was tenanted. Clearance certificates were	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a CEMP prepared by an SQEC with a robust unexpected finds protocol is developed and implemented during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk.

AECs	Findings	Conclusions and Recommendations
building material storage, and general chemical storage)	issued for this work by an LAA. • Surface clearance works undertaken by AGH and supervised Lanterra on the 28th of November 2024, to ensure any residual ACM remaining from the Stage 1 Surface Cleanup works and the now vacant Concrite Lot were removed from the Site. Approximately 6 kg of ACM were identified and removed from across the whole site. The Site was also observed to have construction materials including plastic, tiles, bricks and concrete across the site surface. A clearance certificate was issued for this work by an LAA. • Based on multiple surface clean-up events that have been inspected and cleared by an LAA, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk.	○ As a precautionary measure, the development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.
Former PRRE activities potentially impacted the groundwater and potential soil vapour risk (including waste liquid processing, general chemical storage, and mechanical repairs)	• Historical site use may have impacted groundwater conditions on and off-site and may present a soil vapour risk. No assessment was undertaken for this investigation to assess the potential contamination. However, the proposed site use as a green waste facility and sales yard is unlikely to encounter groundwater, therefore, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk. Residual contamination risk can be managed with site controls provided below.	• Lanterra considers the site can be made suitable for the proposed green waste facility and sales yard operation from a contamination perspective, subject to: ○ Implementation of a CEMP prepared by an SQEC with a robust unexpected finds protocol is developed and implemented during future site operations as a proposed green waste facility and sales yard operation to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk. ○ As a precautionary measure, the development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.

Lanterra notes that an RAP has been prepared for the removal of all confirmed and potential AST and USTs (see **Section 4.1.11**), with remediation and validation work to be undertaken prior to the site being used as a green waste facility and sales yard. The contamination risk is expected to be low once the tanks are removed and remediation is completed and validated.

Based on multiple surface clean-up events that have been undertaken by a licensed asbestos removalist, which was subsequently inspected and cleared by an LAA, Lanterra considers the surface area proposed for use as a green waste facility and sales yard to pose a low contamination risk,

however, the potential for complete exposure pathways remain. It is noted the proposed green waste facility and sales yard pose a lower contamination risk to potential receptors, when compared to the previous industrial waste recycling activities.

However, Lanterra considers the Site within PRRE as shown in **Appendix A: Figure 2A** can be made suitable for the proposed green waste facility and sales yard operation, subject to the implementation of controls to manage the identified complete pathway exposure as below:

- Remedial works to remove and validate the identified USTs and AST on-site, in accordance with an auditor-approved RAP.
- A Construction Environmental Management Plan (CEMP) with a robust unexpected finds protocol (UFP) developed by an SQEC shall be implemented during construction works, to ensure that any unexpected finds are handled in a manner that will not pose an unacceptable risk. The UFP shall continue to be implemented when the site operates as a green waste facility and sales yard to manage any potential unexpected contamination risk.
- The development of the site shall include the installation of a physical surface barrier (e.g. geofabric underlying a gravel surface, or similar), to limit receptor exposure with the ground surface with any potential residual contamination. This shall include the proposed green waste grind area and drop-off area.

11 References

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- ACT EPA (2007) General Environment Protection Policy
- ACT Government (2024) Information Sheet 4 - Requirements for the Reuse and Disposal of Contaminated Soil in the ACT
- ACT Government (2022) Information Sheet 11 - EPA Report Submission Requirements
- ACT Government (2021) Environmental Standards: Assessment and Classification of Liquid and Non-Liquid Wastes
- ACT Government (2024) Belconnen District Policy
- ACT NoWaste (December 2023) West Belconnen Resource Management Centre – Environmental Management Plan (version 10)
- ACT PLA (2023) *Technical Amendment to the Territory Plan 2023-02 (Changes to the West Belconnen Concept Plan), March 2023*
- AGH Demolition & Asbestos Removal (November 2022) Parkwood Road Recycling – Stage 1 Cleanup Works as Executed Report
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- GHD (September 2018) West Belconnen Resource Management Centre Phase 1 Preliminary Site Investigation
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- GHD (December 2021) West Belconnen Resource Management Centre – Detailed Site Investigation
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- Keane Environmental (October 2022) Asbestos Clearance Certificate – Parkwood Road Recycling Estate
- Keane Environmental (November 2024) Asbestos Clearance Certificate – Parkwood Road Recycling Estate
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- Lanterra Consulting (October 2022) Assessment of Hydrovac Drilling Mud, Block 1586 Belconnen ACT
- Lanterra Consulting (October 2022) West Belconnen Resource Management Centre – Waste Cells Investigation
- Lanterra Consulting (November 2022) Validation Report for Former Recycling Facility, Block 1586 Belconnen ACT
- Lanterra Consulting (July 2023) West Belconnen Resource Management Centre – Hatched Area Contaminant Risk and Clearance Zone Assessment (CRCZR) – AEC 2 and AEC 5

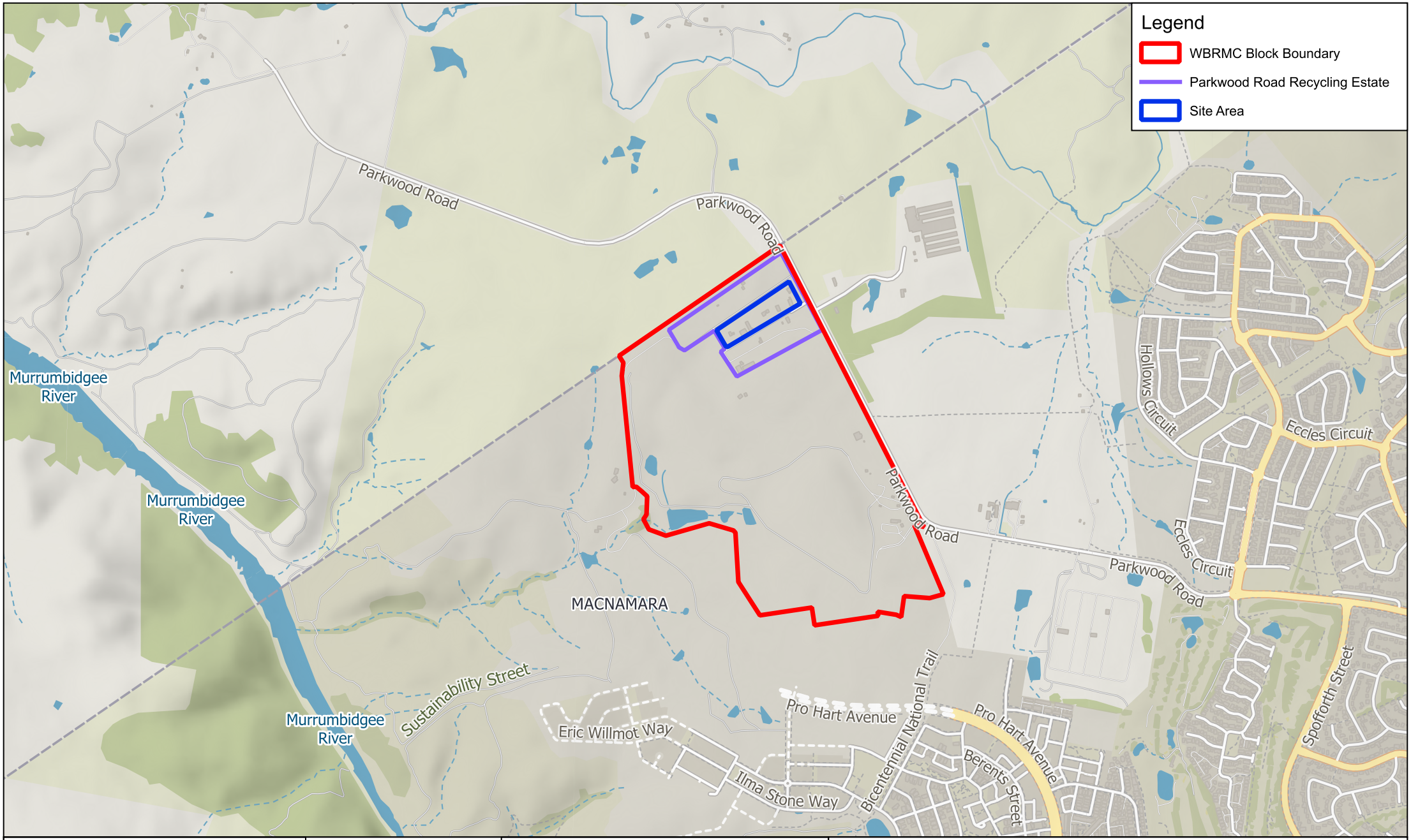
- Lanterra Consulting (November 2024) Parkwood Road Recycling Estate – Stage 1 Surface Cleanup Review
- Lanterra Consulting (December 2024) Remedial Action Plan – Parkwood Road Recycling Estate
- L. T. Frazier and Associates (1975) Planning and Development of the West Belconnen Sanitary Landfill Site – Development Report
- National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended April 2013) (hereafter ASC NEPM 2013)
- NSW EPA (2007) Guidelines for the Assessment and Management of Groundwater Contamination
- NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017)
- NSW EPA (2016) Environmental Guidelines: Solid Waste Landfills
- NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites
- NSW EPA (2020) Assessment and Management of Hazardous Ground Gases
- West Belconnen Concept Plan 2018

12 Glossary

ACM	Asbestos-containing material
ACT	Australian Capital Territory
AEC	Area of Environmental Concerns
AF	Asbestos Fines
AGH	AGH Asbestos Demolition and Asbestos Removal
AHD	Australian Height Datum
ASC NEPM 2013	*National Environment Protection (Assessment of Site Contamination Measure 1999' as amended 2013.*
AST	Above Ground Storage Tank
Bgl	Below ground level
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene
CEMP	Construction Environmental Management Plan
COPC	Contaminants of Potential Concern
CSG	Canberra Sand and Gravel
CSM	Conceptual Site Model
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
EPA/OEPA	Environment Protection Authority / ACT Office of the Environment Protection Authority
FA	Friable Asbestos
FUA	Future Urban Area
GPR	Ground Penetrating Radar
HIL	Health Investigation Level
HSL	Health Screening Level
Keane	Keane Environmental
LAA	Licensed Asbestos Assessor
Lanterra	Lanterra Consulting Pty Limited
LOR	Limit of Reporting
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PBDE	Polybrominated Diphenyl Ethers
PCB	Polychlorinated Biphenyls
PFAS	Per- and poly-fluorinated Substances
PRRE	Parkwood Road Recycling Estate
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RAP	Remedial Action Plan
SAQP	Sampling, Analysis and Quality Plan
SLA	Suburban Land Agency
SMF	Synthetic Mineral Fibre
SQEC	Suitably Qualified Environmental Consultant
SPR	Source Pathway Receptor
SSR	Site Suitability Report
SVOC	Semi-Volatile Organic Compounds
TRH	Total Recoverable Hydrocarbon
UFP	Unexpected Finds Protocol
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WAE	Work as Executed
WBRMC	West Belconnen Resource Management Centre

Appendix A

Figures



0 0.5 1 km

Image Source: Map Tiler Topo

Coordinate System: GDA 2020 MGA Zone 55

N

lanterra consulting

Unit 13/71 Leichhardt Street, Kingston, ACT2604

ABN 30 629 182 823

FIGURE 1: Site Locality

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	West Belconnen Resource Management Centre
CLIENT:	Riverview Projects ACT Limited

0 75 150 m

N

Image Source: Nearmap July 2024

Coordinate System: GDA 2020 MGA Zone 55

lanterra consulting

Unit 13/71 Leichhardt Street, Kingston, ACT2604

ABN 30 629 182 823

FIGURE 2A: Site Layout

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	West Belconnen Resource Management Centre
CLIENT:	Riverview Projects ACT Limited

0 25 50 m

N

Image Source: Nearmap July 2024

Coordinate System: GDA 2020 MGA Zone 55

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Unit 13/71 Leichhardt Street, Kingston, ACT2604

ABN 30 629 182 823

FIGURE 2B: Proposed CSG Site Layout

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	West Belconnen Resource Management Centre
CLIENT:	Riverview Projects ACT Limited

0 25 50 m

Image Source: Nearmap July 2024

Coordinate System: GDA 2020 MGA Zone 55

N

lanterra consulting

Unit 13/71 Leichhardt Street, Kingston, ACT2604

ABN 30 629 182 823

FIGURE 3: ACM Finds Locations

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	West Belconnen Resource Management Centre
CLIENT:	Riverview Projects ACT Limited

0 50 100 m

Image Source: NearMap Aerial 2015 & 2019

Coordinate System: GDA 2020 MGA Zone 55

N

lanterra consulting

Unit 13/71 Leichhardt Street, Kingston, ACT 2604

ABN 30 629 182 823

FIGURE 4: Aerial Photograph Review 2015 and 2019

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	Parkwood Road Recycling Estate - WBRMC
CLIENT:	Riverview Projects ACT Limited

0 50 100 m

Image Source: NearMap Aerial 2022 & 2023

Coordinate System: GDA 2020 MGA Zone 55

N

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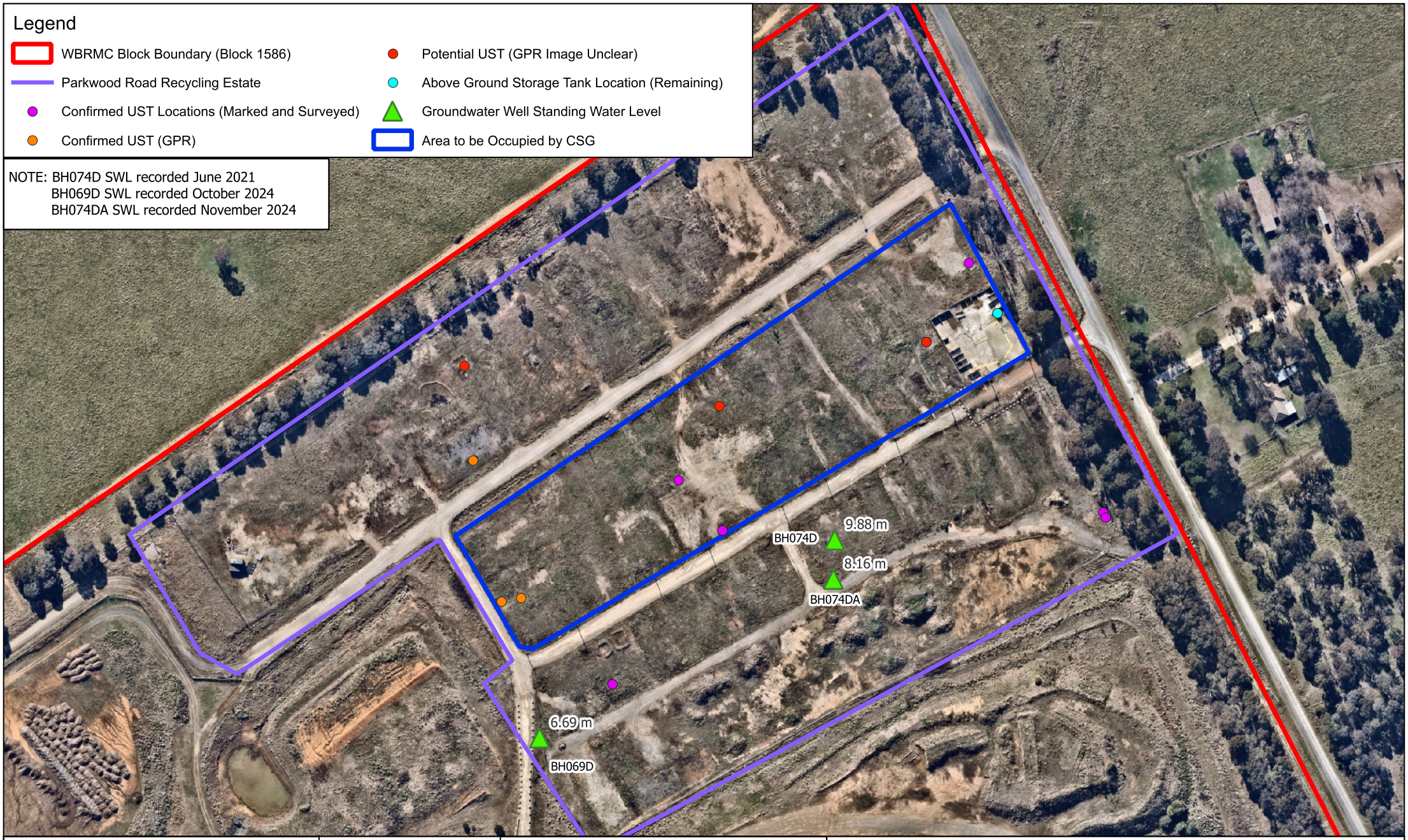
Unit 13/71 Leichhardt Street, Kingston, ACT 2604

ABN 30 629 182 823

FIGURE 5: Aerial Photograph Review 2022 and 2023

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	Parkwood Road Recycling Estate - WBRMC
CLIENT:	Riverview Projects ACT Limited



0 75 150 m

Image Source: Nearmap July 2024

Coordinate System: GDA 2020 MGA Zone 55

N

lanterra consulting

Unit 13/71 Leichhardt Street, Kingston, ACT2604

ABN 30 629 182 823

FIGURE 6: Groundwater Wells & Standing Water Level

PROJECT No:	P24049
PROJECT:	Site Suitability Report - CSG
LOCATION:	Parkwood Road Recycling Estate
CLIENT:	Riverview Projects ACT Limited

Asbestos Clearance Certificate

Appendix B

PROJECT DETAILS

JOB NUMBER	KEC2088	CLEARANCE DATE	28 Nov 2024
CLIENT	Lanterra Consulting	REPORT DATE	28 Nov 2024
CONTACT NAME & NUMBER	Chris Gunton - 0432 324 348		
SITE ADDRESS	Parkwood Road Recycling Estate, Sustainability Street ACT 2615		
SCOPE OF CLEARANCE	Surface clearance following removal of non-friable asbestos sheet debris throughout left side of site prior to CSG takeover.		
ASBESTOS CONTRACTOR	AGH Demolition and Asbestos Removal	SUPERVISOR	Toeun Tuy
ASBESTOS ASSESOR	Ross Bell	LICENSE NUMBER	LAA001255
LEGISLATION	Asbestos removal clearance certificate issued under regulations 473 & 474 of the Work Health Safety Regulation 2011		

VISUAL CLEARANCE

	YES	NO	N/A
Did inspection of the removal area detailed above find no visible asbestos remaining as a result of the asbestos removal work carried out?	☑	☐	☐
Has all accessible non friable asbestos containing material been removed?	☑	☐	☐
Are photographs attached for all phases of the clearance inspection?	☑	☐	☐

CONCLUSION

A thorough a visual inspection after completion of the above scope of works at the site location stated above and found no visible asbestos residue from asbestos removal work in the area, or in the vicinity of the area, where the work was carried out. The asbestos removal work area can now be dismantled and the area safely reoccupied**.** Photographs from the site inspection are attached at Appendix A. **Note: Asbestos may still be buried at depth.**

Kind Regards,

Ross Bell

Ross Bell

Senior Consultant

Keane Environmental Pty Ltd
M:0418289182 E: ged@keaneenviro.com.au
301 Canberra Avenue Fyshwick ACT 2609
ABN: 24 607 178 389

APPENDIX A - PHOTOS

Removal Area

Removal Area

Removal Area

Removal Area

Removal Area

Removal Area

Keane Environmental Pty Ltd
M:0418289182 E: ged@keaneenviro.com.au
301 Canberra Avenue Fyshwick ACT 2609
ABN: 24 607 178 389

Appendix C

Site Photographs

lanterra consulting	**SITE PHOTOGRAPHS**	
Client Name	**Site Location** Parkwood Road Recycling Estate – Site Suitability Report	**Project No.** P24049

Photo No.	**Date**	
1.	28/11/2024	
Description View to east of site.		
Photo No.	**Date**	
2.	28/11/2024	
Description View to west of site.		

lanterra consulting	**SITE PHOTOGRAPHS**	
Client Name	**Site Location** Parkwood Road Recycling Estate – Site Suitability Report	**Project No.** P24049

Photo No.	**Date**	
3.	28/11/2024	
Description View of surface with general waste and potential ACM fragments		

Photo No.	**Date**	
4.	28/11/2024	
Description View of surface with general waste and potential ACM fragments		

lanterra consulting	**SITE PHOTOGRAPHS**	
Client Name	**Site Location** Parkwood Road Recycling Estate – Site Suitability Report	**Project No.** P24049

Photo No.	**Date**
5.	28/11/2024

Description

View of above ground storage tank and bays in former Concrite plant lot. Photo facing north-east.

Photo No.	**Date**
6.	28/11/2024

Description

View of weighed potential ACM finds (1 out of 6 bags).

Appendix D

Report Checklist

P24049 Parkwood Road Recycling Estate – Site Suitability Investigation Reporting Checklist

(NSW EPA 2020, Contaminated Land Guidelines: Consultant Reporting on Contaminated Land)

Report section	Required information	Included	Lanterra Report Section
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	☒	Document control page Section 1.0
Executive summary	Background	☒	Executive summary
	Objectives of the investigation	☒	Executive summary
	Scope of work	☒	Executive summary
	Where appropriate, a summary of key findings, observations and sampling results (if available)	☒	Executive summary
	Summary of conclusions and recommendations	☒	Executive summary
Objectives	The objectives of the investigation/report and the broader objectives for the site/investigation	☒	Section 1.2
Scope of work	Scope of work performed (work not undertaken where relevant)	☒	Section 1.3
Site identification	Site identification and detail items from ASC NEPM Field Checklist 'Site information' sheet.	☒	Section 2
Site history	Site history items from ASC NEPM Field Checklist 'Site information' sheet. A summary is enough if detailed information is included in an available referenced previous report.	☒	Section 4
Site condition and surrounding environment	Site condition and surrounding environment items from ASC NEPM Field Checklist 'Site information' sheet. A summary is enough if detailed information was included in an available referenced previous report, to be updated with site-specific information.	☒	Section 3
Assessment criteria	Table listing all selected assessment criteria and references	☒	Section 7
	Rationale for the selection of assessment criteria, including assumptions and limitations of the criteria (relevant to the assessment and current or proposed landuse) and any deviations from approved guidelines.	☒	Section 7

Report section	Required information	Included	Lanterra Report Section
	Rationale for any site-specific assessment criteria developed through a site-specific risk assessment.	☒	Section 7
Sampling and analysis quality plan and sampling methodology	A strategy to achieve pre-determined data quality objectives, including sampling strategy and justification for the sampling design.	☒	Section 6
	Procedures to be undertaken if the data does not meet the expected data quality objectives.	☒	Section 6
	Sampling an analysis plan and methodology items from ASC NEPM Field Checklist 'SAP, QAQC Sheet'	☐	Not applicable
Results	Summary of previous results, if applicable	☒	Section 4
	A table(s) of analytical results that:		
	shows all essential details such as sample identification numbers and sampling depth	☐	Not applicable
	shows assessment criteria	☐	Not applicable
	highlights all results exceeding any assessment criteria (not just the highest)	☐	Not applicable
	includes a summary/discussion of the analytical results	☐	Not applicable
	includes sample descriptions for all media where applicable (e.g. soil, sediment, surface water, groundwater, biota)	☐	Not applicable
	includes test pit or bore logs (well construction details where appropriate for example groundwater level expressed in Australian height datum)	☐	Not applicable
	includes site plan showing all sample locations	☐	Not applicable
	includes site plan(s) showing the extent of soil and groundwater contamination exceeding selected assessment criteria for each sampling depth, including identification numbers and depths of all samples analysed	☐	Not applicable
	follows appropriate statistical procedures when comparing site data with the investigation and screening levels.	☐	Not applicable

Report section	Required information	Included	Lanterra Report Section
Quality assurance/quality control data evaluation	Details of sampling team	☒	Section 8
	Reference to sampling plan/method, including any deviations from it – sampling and analysis quality plan	☐	Not applicable
	Any information that could be required to evaluate measurement uncertainty for subsequent testing (analysis)	☐	Not applicable
	Decontamination procedures carried out between sampling event	☐	Not applicable
	Logs for each sample collected, including date, time, location (with GPS coordinates if possible), sampler, duplicate samples, chemical analysis to be performed, site observations and weather/environmental (i.e. surroundings) conditions. Include any, diagrams, maps, photos.	☐	Not applicable
	Chain of custody fully identifying – for each sample – the sampler, nature of the sample, collection date, analysis to be performed, sample preservation method, departure time from the site and dispatch couriers (s) (where applicable).	☐	Not applicable
	Field quality assurance/quality control results (e.g.) field blank, rinsate blank, trip blank, laboratory prepared trip spike	☐	Not applicable
	Sample splitting techniques – subsampling, containers/preservation (ensure unique ID for subsequent samples provided)	☐	Not applicable
	Statement of duplicate frequency	☐	Not applicable
	Background sample results	☐	Not applicable
	Field instrument calibrations (when used)	☐	Not applicable
	Sampling devices and equipment	☐	Not applicable
	A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments.	☐	Not applicable
	Record of holding times and a comparison with method specifications	☐	Not applicable

Report section	Required information	Included	Lanterra Report Section
	Analytical methods used, including any deviations	☐	Not applicable
	Laboratory accreditation for analytical methods used, also noting any methods used which are not covered by accreditation	☐	Not applicable
	Laboratory performance for the analytical method using inter-laboratory duplicates	☐	Not applicable
	Surrogates and spikes used throughout the full method process, or only in parts. Results are corrected for the recovery	☐	Not applicable
	A list of what spikes and surrogates were run with their recoveries and acceptance criteria (tabulate)	☐	Not applicable
	Practical quantification limits (PQL)	☐	Not applicable
	Reference laboratory control sample (LCS) and check results	☐	Not applicable
	Laboratory duplicate results (tabulate)	☐	Not applicable
	Laboratory blank results (tabulate)	☐	Not applicable
	Results are within control chart limits	☐	Not applicable
	Evaluation of all quality assurance/control information listed above against the stated data quality objectives, including a quality assurance/control data evaluation	☐	Not applicable
Conceptual site model	Regional and local geology, hydrogeology and hydrology items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 3
	List of potential contaminants of concern	☒	Section 5 and 9
	Potential and known sources of contamination on- and offsite	☒	Section 5 and 9
	Mechanism of contamination	☒	Section 5 and 9
	Potentially affected environmental media	☒	Section 5 and 9
	Consideration of spatial and temporal variations	☒	Section 5 and Section 6

Report section	Required information	Included	Lanterra Report Section
	Actual or potential exposure pathways. Also consider preferential pathways for contaminant migration	☒	Section 5 and 9
	Human and ecological receptors	☒	Section 5 and 9
	Frequency of exposure	☒	Section 5
	Linkage of source, pathway and receptor assessed in terms of potentially complete pathways and likelihood	☒	Section 5 and 9
	Discussion on multiple lines of evidence (for complex sites)	☒	Section 5 and 9
	Previous site investigations, contaminant characteristics and migration items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 4
	Conceptual site model items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 5 and 9
	Meteorological data items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 3
	Sources of variability	☒	Section 9
	Data gap identification	☒	Section 9
	Sensitivity analysis where modelling is undertaken.	☐	Not applicable
Data Quality Objectives	Step 1: State the problem	☒	Section 6
	Step 2: Identify the decision / goal of the study	☒	Section 6
	Step 3: Identify the information inputs	☒	Section 6
	Step 4: Define the boundaries of the study	☒	Section 6
	Step 5: Develop the analytical approach	☒	Section 6
	Step 6: Specify performance or acceptance criteria	☒	Section 6
	Step 7: Develop the plan for obtaining data	☒	Section 6

Report section	Required information	Included	Lanterra Report Section
	Are the data quality objectives linked to the conceptual site model, and have they been updated with the conceptual site model?	☒	Section 9
Site characterisation	Assessment of extent of contamination considering all relevant media, including offsite areas	☒	Section 9
	Assessment of aesthetic issues	☒	Section 9
	Assessment of secondary toxicity (if conducting an ecological risk assessment)	☐	Not applicable
	Assessment of potential effects of contaminants on human health, and built structures (for example arising from risks to service lines from hydrocarbons in groundwater, or risks to concrete from acid sulphate soils)	☒	Section 9
	Assessment of chemical degradation products	☐	Not applicable
	Assessment of possible exposure routes and exposed populations (human, ecological)	☒	Section 9
	Any evidence of, or potential for, migration of contaminants from the site, including odour, air quality, stormwater, sedimentation, soil vapour, ground gases and groundwater issues	☒	Section 9
Conclusions and recommendations	Summary of all findings	☒	Exec Summary & Section 10
	Conclusions addressing the stated objectives	☒	Exec Summary & Section 10
	Assumptions used in reaching the conclusions	☒	Exec Summary & Section 10
	Extent of uncertainties in the results	☒	Exec Summary & Section 10
	A clear-cut statement that the consultant considers the site to be suitable for the proposed use (where applicable)	☒	Exec Summary & Section 10
	A statement detailing all limitations and constraints on the use of the site (where applicable)	☒	Section 1.5
	Recommendations for further work, if appropriate	☒	Exec Summary & Section 10