



Nova
Group
pacific

Preliminary Site Investigation

Stephen Bartrop

360 Wallarobba-Brookfield Rd,
Brookfield NSW 2420

January 2026

REPORT DISTRIBUTION

Report Title	Preliminary Site Investigation
Site Address	360 Wallarobba-Brookfield Rd, Brookfield NSW 2420
Lot/DP	Lot 18 DP 1279754
Project Reference	S00931
Prepared For	Stephen Bartrop
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Author	Satish Maharjan Environmental Consultant M. Environmental Science B. Environmental Science 
Reviewed by	Tiago Guedes Senior Environmental Consultant PhD Environmental Engineering B. Environmental Engineering 
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Nova Group Pacific Pty Ltd ACN: 635 583 327	Enquiries: hello@novagrouppacific.com.au www.novagrouppacific.com.au 1300 034 153

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V0	27/01/2026	Satish Maharjan	Draft Version
V01	28/01/2026	Tiago Guedes	Final Version

Executive Summary

Nova Group Pacific Pty Ltd (Nova Pacific) was engaged by Stephen Bartrop (the client) to conduct a Preliminary Site Investigation (PSI) on the southern section of the property located at 360 Wallarobba-Brookfield Rd, Brookfield NSW 2420 (the site). The property's legal definition is Lot 18 DP 1279754 and comprises an approximate area of 600,000 m². The site comprises approximately 14,750 m².

The site is located approximately 65 km northeast of Newcastle, within the Local Government Area (LGA) of the Dungog Shire Council (DSC).

The site locations shown in **Figures 1 and 2**, provided in **Appendix A**.

Nova Pacific understands that the proposed residential development involves the extension of an existing livestock shelter located in the south-western section of the site.

This report has been prepared to support a Development Application (DA) to DSC and for the purpose of enabling the developer to meet its obligations under the Contaminated Land Management Act 1997 (CLM Act).

Information gathered during the desktop review of available historical information and the site walkover identified four (4) potential Areas of Environmental Concern (AECs) at the site:

- **AEC 1** – Potential uncontrolled fill material across the site;
- **AEC 2** – Hazardous building materials from existing structures;
- **AEC 3** – Storage of farm equipment and vehicles; and
- **AEC 4** – Historical use of herbicides/pesticides on site.

Based on the review of the site history, desktop assessment, site inspection and analytical results forming this PSI, Nova Pacific draws the following conclusion:

- The site appears to have been used for rural residential and agricultural purposes since at least the late 1950s, with no significant changes in land use identified;
- The site comprises a residential dwelling, ancillary rural structures, grazing areas, and associated access tracks;
- No evidence of soil staining, or odours indicative of contamination was observed during the site inspection, but storage of farm equipment and vehicles were observed;
- The historic images suggest the chances of uncontrolled fill material within the site which may have been imported to level the ground for development, which requires further investigation, including soil sampling for a better understanding of the possible contamination and potential migration pathways of CoPC to future site workers;
- During the site inspection, aged building materials were observed across the site, including possible ACM and lead base paints. Flaking paints were found on the walls of the livestock handling area located southwestern section of the site; and
- Given the site history and its location within a broader farm and livestock setting, as well as the on-site storage of equipment and vehicles, there is potential for contaminants such as herbicides, pesticides and heavy metals to have migrated onto the site via surface water runoff.

Overall, based on the desktop assessment and site inspection, the site is considered to present a **low to moderate** contamination risk from a human health and ecological perspective. Appropriate management of hazardous building materials and general site controls should be implemented during construction activities, and any unexpected contamination encountered during future works should be assessed in accordance with relevant NSW EPA guidelines.

Based on the findings of this report, Nova Pacific recommends the following:

- Given the identification of potential contamination associated with the use of uncontrolled fill material and the historical application of herbicides and pesticides within the development area, it is recommended that a Detailed Site Investigation (DSI) be undertaken to assess potential soil contamination prior to any ground disturbance or redevelopment activities;

- A Hazardous Building Materials Survey (HAZMAT) should be undertaken to confirm the presence or absence of hazardous materials within any buildings proposed for demolition and/or renovation;
- In the event of any unexpected finds, including odorous and/or stained soil material or underground tank storage, Nova Pacific must be notified immediately for further investigation; and
- If any proposed soil is to be excavated as part of the development and requires off-site disposal, then the waste needs to be classified in accordance with the NSW Environmental Protection Authority, Waste Classification Guidelines Part 1: Classifying Waste, 2014.

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1 Introduction

Nova Group Pacific Pty Ltd (Nova Pacific) was engaged by Stephen Bartrop (the client) to conduct a Preliminary Site Investigation (PSI) on the southern section of the property located at 360 Wallarobba-Brookfield Rd, Brookfield NSW 2420 (the site). The property's legal definition is Lot 18 DP 1279754 and comprises an approximate area of 600,000 m². The site comprises approximately 14,750 m².

The site is located approximately 65 km northeast of Newcastle, within the Local Government Area (LGA) of the Dungog Shire Council (DSC).

The site locations shown in **Figures 1 and 2**, provided in **Appendix A**.

1.1 Background

Nova Pacific understands that the proposed residential development involves the extension of an existing livestock shelter located in the south-western section of the site.

This report has been prepared to support a Development Application (DA) to DSC and for the purpose of enabling the developer to meet its obligations under the Contaminated Land Management Act 1997 (CLM Act).

1.2 Objectives

The objectives of this PSI were as follows:

- Assess the potential for contamination within the site, from former and current land use activities;
- Undertake a site inspection to identify relevant site features, proximity to potential environmental receptors, characteristics of surface material, waste, staining and other indicators of potential contamination; and
- Provide recommendations in relation to further investigation and/or a Detailed Site Investigation (DSI) (if required).

2 Scope of Works

To complete this PSI, Nova Pacific undertook the following scope of work:

- A desktop review of the following sources:
 - Published geology maps;
 - Real NSW Bore reports;
 - Local council GIS layers including lot description, land zoning and council flood mapping;
 - NSW ePlanning Spatial Viewing GIS layers, including hydrology and Acid Sulfate Soil Risk Mapping;
 - Australian Per and Polyfluoroalkyl Substances (PFAS) Chemical Map;
 - NSW Environmental Protection Agency (EPA) Contaminated Land Register (CLR) search; and
 - Protection of the Environment Operations (POEO) Act Public Register search.
- Local council records and planning search:
 - A historical review, which included current and historical aerial photographs.
- Site inspection detailing current site use and any potential indicators of contamination;
- Development of a Conceptual Site Model (CSM) identifying potential sources of contamination, pathways and receptors and any potential linkages; and
- Preparation of this PSI Report, documenting our findings regarding the investigation and recommendations for further investigations (if required).

3 Regulatory Framework

This PSI was undertaken in accordance with the following regulatory framework and guidelines:

- National Environment Protection (Assessment of Site Contamination) Measure as varied 2011, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater, 2013;
- National Environment Protection (Assessment of Site Contamination) Measure as varied 2011, Schedule B2 – Guideline on Site Characterisation, 2013;
- NSW Department of Environment and Conservation, Guidelines for the Assessment and Management of Groundwater Contamination, 2007;
- NSW Department of Planning and Environment, State Environmental Planning Policy (Resilience and Hazards) Chapter 4, 2022;
- NSW Environmental Protection Authority, Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme (3rd Edition), 2017;
- NSW Environmental Protection Authority, Guidelines on the Duty to Report Contamination under Contaminated Land Management Act, 1997;
- NSW Environmental Protection Authority, Sampling Design Guidelines, 2022;
- NSW Environmental Protection Authority, Waste Classification Guidelines Part 1: Classifying Waste, 2014;
- NSW Environmental Protection Authority, Consultants reporting on contaminated Land: Contaminated land guidelines, 2020;
- Western Australia Department of Health, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2021;
- Work Health and Safety Act, 2011; and
- Work Health and Safety Regulation, 2025.

4 Site Condition and Environmental Setting

4.1 Site Identification

A site location and layout are shown in **Figures 1 and 2**, provided in **Appendix A**. A summary of the Site Details is shown below in **Table 1**.

Table 1: Site Details	
Site Address	360 Wallarobba-Brookfield Rd, Brookfield NSW 2420.
Lot Description	Lot 18 DP 1279754.
Site Location Plan	Figures 1 and 2 in Appendix A.
Site Photographs	Appendix B.
Area of the property (m²)	600,000.
Site Area (m²)	14,750.
Local Government Council	Dungog Shire Council (DSC).
Current Land Zone	RU1: Primary Production.

4.2 Site Description

Nova Pacific completed a site inspection on 21st January 2026. Site photographs are shown in **Appendix B**. Key observations noted during the inspection are summarised in **Table 2**.

Table 2: Site Layout and Current Use	
Site Layout and Use	Details
Current use	The site is currently used for rural residential purposes with associated agricultural activities, which comprises a residential dwelling, metal sheds, livestock handling areas which is divided into stable, barn and storage, and open grazing paddocks.
Surface cover type and condition	The surface cover across the site primarily consists of grassed areas. Localised areas of compacted soil and gravel are present along driveways and the dwelling. Garden beds are present adjacent on the western side of the dwelling. Underground wastewater treatment system (septic tank) was observed northwest of the dwelling. Refer to Figure 2 and 3 of Appendix A for the site layout.
Building construction	The site contains a single-storey residential dwelling constructed of timber framing with weatherboard cladding and a corrugated fibre-cement sheets roof. Several ancillary rural structures are present, which includes sheds, a carport-style structure which are present on the eastern side of the site and a livestock shelter present both on eastern and western section. These buildings are predominantly constructed of timber framing with corrugated metal wall and roof cladding.
Water runoff flow direction and drain/ pit location	The site exhibits gently undulating topography, sloping from the eastern and north-eastern portions toward the western boundary, with surface water runoff expected to follow the natural gradient. No formal drainage channels or pits were observed during the site investigation.
Depth, size, and flow of any water features, which may include creeks, rivers, lakes, ponds, and lagoons	No creeks, rivers, ponds, lagoons, or other natural surface water features were observed within the investigation area. However, man-made dams are present within the site boundaries, located in the northern and north-western sections of the site.
Presence and location of groundwater monitoring wells, soil bores	There were no groundwater or soil bores observed in the site.

4.3 Surrounding Land Use

A summary of the surrounding features and/or land uses noted during a review of desktop information and the site inspection is provided in **Table 3**.

<i>Table 3: Surrounding Land Use</i>	
North	Primary Production zoned as RU1.
East	Primary Production zoned as RU1.
South	Primary Production zoned as RU1.
West	Primary Production zoned as RU1.
Abbreviations (NSW Department of Planning and Environment):	
RU1: Primary Production	

4.4 Geology

The NSW Government's MinView database (minview.geoscience.nsw.gov.au) indicates that the site is underlain by the Wallarobba Conglomerate, a geological unit within the Wallaringa Formation. This unit comprises thick-bedded cobble conglomerate with clasts of devitrified volcanic rocks, sedimentary rocks, and granitoids set in a pink zeolitic sandstone matrix. The formation is dated to the Middle Mississippian period, with an estimated age range of approximately 346.7 to 330.9 million years. No subordinate constituent units have been identified within this formation.

4.5 Hydrogeology

A search of the WaterNSW Portal was conducted on 5th January 2026, which identified one (1) registered groundwater bore within 500m of the site. The Bore Map is attached in **Figure 5 of Appendix A**.

<i>Table 4: Groundwater Bore Information</i>				
<i>Groundwater Bore ID</i>	<i>Bore Location</i>	<i>Total Depth (m)</i>	<i>Lithology</i>	<i>Purpose</i>
GW051865	450 m west	41.5	0 – 0.3m Clay; 0.3 – 12.2m Sandstone; 12.2 – 19.5m Shale; and 19.5 to 41.5m Volcanic	Stock

4.6 Hydrology

A search of Google Earth undertaken on 5th January 2026 indicated that the closest surface water body to the site is the Unwarrabin Creek, located approximately 100 metres south of the property.

4.7 Site Vegetation

The site is predominantly vegetated with pasture grass and low groundcover across open areas, with scattered mature native trees, including eucalyptus species, distributed throughout the site. Vegetation across the site appeared well-established, with no visible signs of stress or contamination impact observed at the time of inspection.

4.8 Topography

A review of Google Earth undertaken on 5th January 2026 indicates that the property exhibits a gentle topography with a general slope from east to west and southwest. Ground levels range from approximately 92 m Australian Height Datum (AHD) along the eastern boundaries to 77 m AHD at the western boundaries.

4.9 Acid Sulfate Soils

A search of the DSC Local Environmental Plan (LEP) 2014 was undertaken on 5th January 2026, to identify the site-specific Acid Sulfate Soils (ASS) risk rating at site. The site is not identified as being located within acid sulfate soils risk area.

4.10 Per & Polyfluoroalkyl Substances

The Australian potential Per- and Poly-Fluoroalkyl Substances (PFAS) Chemicals Map was viewed on 5th January 2026. There were no sites identified as impacted by PFAS contamination within the immediate vicinity of the site.

5 Site History

A site history assessment was conducted, which comprised a review of current and historical aerial photographs.

5.1 Historical Aerial Photographs

Aerial photographs dating back to 1958 were reviewed as part of this PSI. Descriptions of the aerial photographs are presented in **Table 4**. The aerial photographs are provided in **Appendix A**.

<i>Table 4: Summary of Historical Aerial Review</i>		
Date	Observations on Site	Observations offsite
1958	The site looks predominantly undeveloped rural land with very few structures and the landscape appearing largely vegetated.	Predominantly undeveloped rural land with few structures.
1971	Limited development with a few structures likely a dwelling, rural buildings, more defined rural roads and access tracks are visible within the site locality.	Few scattered rural dwellings and ancillary farm structures in the broader locality are visible.
1977	A few more structures appear on the site with no significant changes observed on site.	No significant changes were observed in the surrounding area.
1993	No significant changes were observed at the site.	Increased residential development with several detached dwellings and associated rural buildings are visible.
2004	No significant changes were observed at the site	No significant changes were observed in the surrounding area
2009	No significant changes were observed at the site	No significant changes were observed in the surrounding area
2015	No significant changes were observed at the site	No significant changes were observed in the surrounding area
2023 - present	No significant changes were observed at the site.	No major changes are observed in the surrounding area. Residential development continues to expand slightly to the west.

5.2 Local Council Planning Certificate

The site falls under the Zone RU1: Primary Production zoning according to the Dungog LEP 2014. According to the LEP zone RU1: Primary Production zone is defined as below:

1. Objectives of the zone:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To provide for recreational and tourist activities that are compatible with the agricultural, environmental and conservation value of the land.
- To promote the rural amenity and scenic landscape values of the area and prevent the silhouetting of unsympathetic development on ridgelines.

2. Permitted without consent:

Environmental protection works; Extensive agriculture; Home occupations; Horticulture; Markets; Roads; Roadside stalls.

3. Permitted with consent:

Agritourism; Airstrips; Animal boarding or training establishments; Aquaculture; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cellar door premises; Cemeteries; Charter and tourism boating facilities; Community facilities; Correctional centres; Crematoria; Dual occupancies; Dwelling houses; Eco-tourist facilities; Educational establishments; Environmental facilities; Extractive industries; Farm buildings; Flood mitigation works; Forestry; Freight transport facilities; Function centres; Group homes; Health services facilities; Helipads; Heliports; Highway service centres; Home-based child care; Home businesses; Home industries; Industrial training facilities; Information and education facilities; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Kiosks; Landscaping material supplies; Marinas; Moorings; Open cut mining; Places of public worship; Plant nurseries; Recreation areas; Recreation facilities (outdoor); Restaurants or cafes; Rural industries; Rural supplies; Rural workers' dwellings; Signage; Timber yards; Tourist and visitor accommodation; Transport depots; Truck depots; Veterinary hospitals; Water recreation structures.

4. Prohibited:

Any development not specified in item 2 or 3

5.3 NSW EPA Contaminated Land Register

The NSW EPA publishes a list of contaminated land notified under Section 58 of the Contaminated Land Management Act 1997 (CLM Act). These have been assessed by the EPA as being contaminated but not always require regulation under the CLM Act. It does not include notifications under Section 60 of the CLM Act.

A search of the NSW EPA Contaminated Land Register undertaken on 6th January 2026 found no results relating to the site or within 500 m of the sites surrounds.

5.4 Protection of the Environmental Operations Act Public Register

A review of the publicly accessible NSW EPA Record of Notices was conducted on 6th January 2026. The search aimed to find any licences, applications, notices, audits, pollution studies or reduction programs under Section 308 of the Protection of the Environment Operations Act 1997. The search did not identify the site or properties within 500m of the site in the register.

6 Preliminary Conceptual Site Model

In accordance with the NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, a Conceptual Site Model (CSM) assesses plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for reviewing the reliability and usability of the collected data and for identifying data gaps in the existing site characterisation.

From the desktop study, site walkover and historical data available, a CSM has been prepared to identify potential sources, exposure pathways and receptors of contamination associated with the subject site. This information is summarised in the following sub-sections.

6.1 Potential Contamination Sources

Based on the review of background information and historical images, Nova Pacific considers that the potential primary sources of contamination at the site are associated with:

- **AEC 1** – Potential uncontrolled fill material across the site;
- **AEC 2** – Hazardous building materials from existing structures;
- **AEC 3** – Storage of farm equipment and vehicles; and
- **AEC 4** – Historical use of herbicides/pesticides on site.

Potential source of contamination, the associated Areas of Environmental Concern (AEC) and Contaminants of Potential Concern (CoPC) are shown in **Table 5**.

<i>Table 5: Potential Sources of Contamination</i>		
Potential Source of Contamination	Activity	CoPC
AEC 1 – Potential uncontrolled fill material across the site.	Importation of fill material from an unknown source for site grading purposes.	Asbestos, Heavy Metals, TRH, BTEXN, PAH, OCP/OPP, PCB and Asbestos.
AEC 2 – Hazardous building materials from existing structures.	Historic use of hazardous materials in the building structures.	Asbestos and Lead.
AEC 3 – Storage of farm equipment and vehicles.	Use of portions of the site for storage of vehicles, machinery, scrap materials, and general farm-related equipment.	Heavy metals, TRH, PAHs, BTEXN and PAHs.
AEC 4 – Historical use of herbicides/pesticides on site	Historical use of pesticides on site.	Organochlorine (OC), Organophosphate (OP) Pesticides and Heavy Metals

***Notes:**

Heavy metals – Arsenic, chromium, cadmium, copper, lead, nickel and zinc;

TRH – Total Recoverable Hydrocarbons;

TPH – Total Petroleum Hydrocarbons;

BTEXN – Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene;

OCP/OPP – Organochlorine, Organophosphate Pesticides; and

PCBs – Polychlorinated Biphenyls

6.2 Potentially Migration Pathways

A review of the likely contaminant migration pathways and potential mechanisms associated with contaminant movement was carried out as part of the site inspection. The potential migration mechanisms and pathways considered included:

- Soil ingestion;
- Dermal contact;
- Inhalation of vapours;
- Direct uptake;
- Vertical migration;
- Migration via underground service trenches and fill preferential pathways;
- Horizontal migration; and
- Groundwater migration.

6.3 Potential Receptors of Contamination

Key receptors and associated pathway mechanisms identified are presented below:

Onsite

- Maintenance workers: Exposure pathways associated with these receptors include dermal contact, ingestion of soil/water and inhalation of dust or vapours associated with potential contamination;
- Future site workers and personnel utilising the site for residential purposes: Exposure pathways associated with these receptors include dermal contact, ingestion of soil/water and inhalation of dust or vapours associated with potential contamination;
- Ecological receptors (fauna): Direct and indirect exposure pathways include dermal contact, inhalation, ingestion (e.g., contaminated food items, ingestion of contaminated dust through preening);
- Ecological receptors (flora): Uptake of contaminated soil or groundwater contamination into the root system, foliage, or fruit; and
- Groundwater and surface water ecosystems onsite.

Offsite

- Residential properties;
- Maintenance workers; and
- Residents on the property.

6.4 CSM Summary

Based on the CSM, the potential exposure of CoPC at the site is considered **Low to Moderate**, given the extent of AEC identified during the site inspection. Four (4) AECs have been identified, as summarised below.

- **AEC 1** – Potential uncontrolled fill material across the site;
- **AEC 2** – Hazardous building materials from existing structures;
- **AEC 3** – Storage of farm equipment and vehicles; and
- **AEC 4** – Historical use of herbicides/pesticides on site.

6.4.1 AEC 1 – Potential uncontrolled fill material across the site

Uncontrolled fill material has the potential to contain contaminants within its matrix, which may result in localised contamination. Leachate generated from such material can migrate into underlying soils and nearby waterways, posing a risk to ecological receptors, including sediment-dwelling microorganisms and other flora and fauna that may come into contact with potentially contaminated soils. Contaminated uncontrolled fill also

has the capacity to impact human health through contact with material via dermal contact, incidental ingestion, and incidental inhalation of volatising contaminants.

6.4.2 AEC 2 – Hazardous building materials from existing structures

Hazardous materials, such as asbestos and lead-based paints, used on old buildings present the potential for soil contamination due to weathering and damage. When ACMs break down, asbestos fibres can be released into the air and settle in surrounding soil, leading to long-term contamination. A similar process is observed with lead-based paint when deteriorating due to weathering can deposit on soil, posing a persistent risk as lead does not degrade and can accumulate over time. The disturbance of hazardous materials in structures or existing within soils, has the capacity to impact human health through dermal contact, incidental ingestion, and incidental inhalation of volatilising contaminants and/or asbestos fibres.

6.4.3 AEC 3 – Storage of farm equipment and vehicles.

The uncontrolled storage of vehicles, machinery, and farm-related materials represents a potential source of contamination. These activities may be associated with contaminants of concern including heavy metals, total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAHs), and petroleum-related compounds such as BTEXN. Contaminants may leach into underlying soils from fuel, oil, and lubricant residues, with potential mobilisation via surface runoff during rainfall events. This may result in degradation of soil quality and pose potential risks to ecological receptors and human health through dermal contact, incidental ingestion, or inhalation of contaminated soil or dust if unmanaged.

6.4.1 AEC 4 – Historical use of herbicides/pesticides on site

The application of herbicides and/or pesticides on a property raises environmental and health concerns. These chemicals can leach into the soil, contaminating groundwater and posing risks to aquatic ecosystems. Runoff may harm non-target organisms, disrupt local ecosystems, and may affect human health through ingestion, and direct exposure poses risks such as respiratory issues and skin irritation.

7 Discussion and Conclusion

Nova Group Pacific Pty Ltd (Nova Pacific) was engaged by Stephen Bartrop (the client) to conduct a Preliminary Site Investigation (PSI) at the site located at 360 Wallarobba-Brookfield Road, Brookfield NSW 2420.

Information gathered during the desktop review of available historical information and the site walkover identified four (4) potential Areas of Environmental Concern (AECs) at the site:

- **AEC 1** – Potential uncontrolled fill material across the site;
- **AEC 2** – Hazardous building materials from existing structures;
- **AEC 3** – Storage of farm equipment and vehicles; and
- **AEC 4** – Historical use of herbicides/pesticides on site.

Based on the review of the site history, desktop assessment, site inspection and analytical results forming this PSI, Nova Pacific draws the following conclusion:

- The site appears to have been used for rural residential and agricultural purposes since at least the late 1950s, with no significant changes in land use identified;
- The site comprises a residential dwelling, ancillary rural structures, grazing areas, and associated access tracks;
- No evidence of soil staining, or odours indicative of contamination was observed during the site inspection, but storage of farm equipment and vehicles were observed;
- The historic images suggest the chances of uncontrolled fill material within the site which may have been imported to level the ground for development, which requires further investigation, including soil sampling for a better understanding of the possible contamination and potential migration pathways of CoPC to future site workers;
- During the site inspection, aged building materials were observed across the site, including possible ACM and lead base paints. Flaking paints were found on the walls of the livestock handling area located southwestern section of the site; and
- Given the site history and its location within a broader farm and livestock setting, as well as the on-site storage of equipment and vehicles, there is potential for contaminants such as herbicides, pesticides and heavy metals to have migrated onto the site via surface water runoff.

Overall, based on the desktop assessment and site inspection, the site is considered to present a **low to moderate** contamination risk from a human health and ecological perspective. Appropriate management of hazardous building materials and general site controls should be implemented during construction activities, and any unexpected contamination encountered during future works should be assessed in accordance with relevant NSW EPA guidelines.

8 Recommendations

Based on the findings of this report, Nova Pacific recommends the following:

- Given the identification of potential contamination associated with the use of uncontrolled fill material and the historical application of herbicides and pesticides within the development area, it is recommended that a Detailed Site Investigation (DSI) be undertaken to assess potential soil contamination prior to any ground disturbance or redevelopment activities;
- A Hazardous Building Materials Survey (HAZMAT) should be undertaken to confirm the presence or absence of hazardous materials within any buildings proposed for demolition and/or renovation;
- In the event of any unexpected finds, including odorous and/or stained soil material or underground tank storage, Nova Pacific must be notified immediately for further investigation; and
- If any proposed soil is to be excavated as part of the development and requires off-site disposal, then the waste needs to be classified in accordance with the NSW Environmental Protection Authority, Waste Classification Guidelines Part 1: Classifying Waste, 2014.

9 Limitations

Nova Group Pacific Pty Ltd (Nova Pacific) understands, to the best of our knowledge, that the information within this report is accurate at the date of issue. However, due to the irregularity and dynamic nature of subsurface conditions, soil and groundwater characteristics are capable of changing over a short period of time. No warranties, expressed or implied, are made. The contents of this report must be read in full.

If unexpected finds of materials suspected to be hazardous or toxic occur, all site works must cease, and Nova Pacific must be immediately contacted for further instruction.

Nova Pacific performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. There is no investigation thorough enough to dismiss a particular material that, presently or in the future, is considered hazardous at the site. Regulatory criteria are subject to change, where concentrations of a particular contaminant currently considered low could be subject to review and fall under different regulatory standards and criteria and may require remediation in the future.

The results of this assessment are based on a desktop review of available information and regulatory criteria identified at the time of the site inspection. Nova Pacific will not be liable to revise the report to account for any changes in site characteristics, regulatory requirements, assessment criteria or the availability of additional information subsequent to the issue date of this report. The scope and period of Nova Pacific's services are subject to restrictions and limitations. Nova Pacific did not perform a complete assessment of all possible conditions that may exist at the site.

Nova Pacific takes no responsibility or liability for errors in any data obtained from scientific laboratories, regulatory agencies, statements from sources outside of Nova Pacific, or developments resulting from situations outside the scope of this project.

All conclusions and recommendations regarding the site are the opinion of Nova Pacific. Opinions are judgements that are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

We trust the information contained within this document meets your requirements. Should you have any queries, please do not hesitate to contact Nova Pacific.

10 References

- Google Earth, <https://www.google.com/earth>.
- National Environment Protection (Assessment of Site Contamination) (NEPC) Measure as varied 2011, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater, 2013.
- National Environment Protection (Assessment of Site Contamination) (NEPC) Measure as varied 2011, Schedule B2 – Guideline on Site Characterisation, 2013.
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- WaterNSW, waternsw.com.au.
- Western Australia Department of Health, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009.
- Work Health and Safety Act, 2011.
- Work Health and Safety Regulation, 2025.

11 Abbreviations

ACM	Asbestos Containing Material
AEC	Areas of Environmental Concern
AFFF	Aqueous Firefighting Foam
AMP	Asbestos Management Plan
ASS	Acid Sulfate Soils
BGL	Below Ground Level
BSC	Byron Shire Council
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene
C&D	Construction & Demolition
CEC	Cation Exchange Capacity
CLM Act	Contaminated Land Management Act 1997
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DA	Development Application
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ENM	Excavated Natural Material
EPA	Environment Protection Agency
ESL	Ecological Screening Level
GME	Groundwater Monitoring Event
HIL	Health Investigation Level
HSL	Health Screening Level
NATA	National Association of Testing Authorities
NSW CLR	New South Wales Contaminated Land Register
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soil
PCB	Polychlorinated Biphenyl
PFAS	Per and Poly-Fluoroalkyl Substances

PID	Photoionsation Detector
PSI	Preliminary Site Investigation
RAP	Remedial Action Plan
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
UST	Underground Service Tank
VENM	Virgin Excavated Natural Material

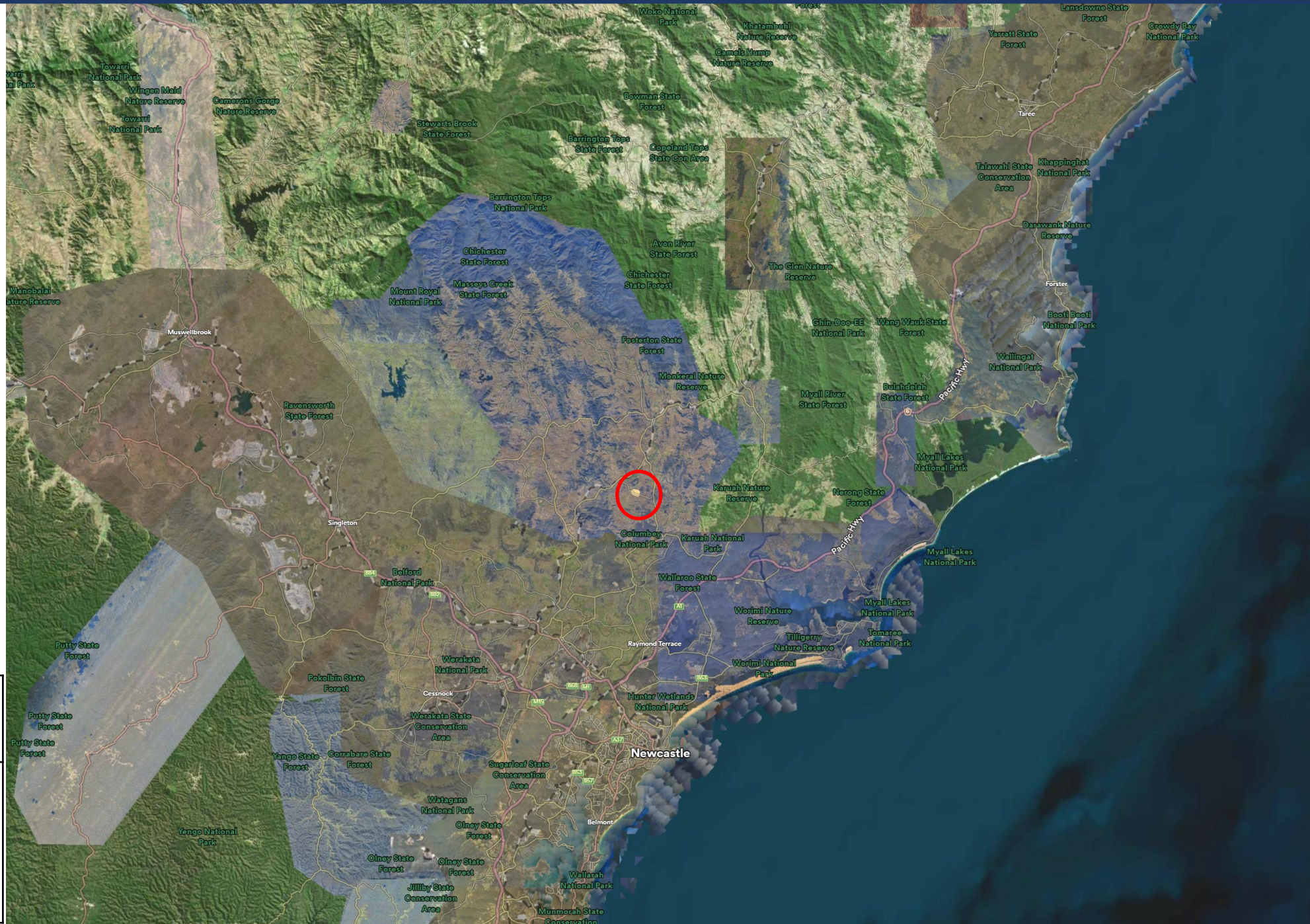
Appendix A: Figures

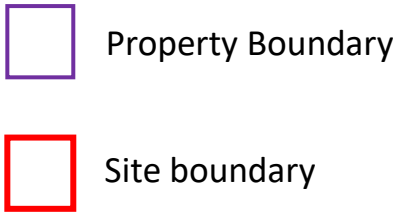


Figure 1:
Site Location

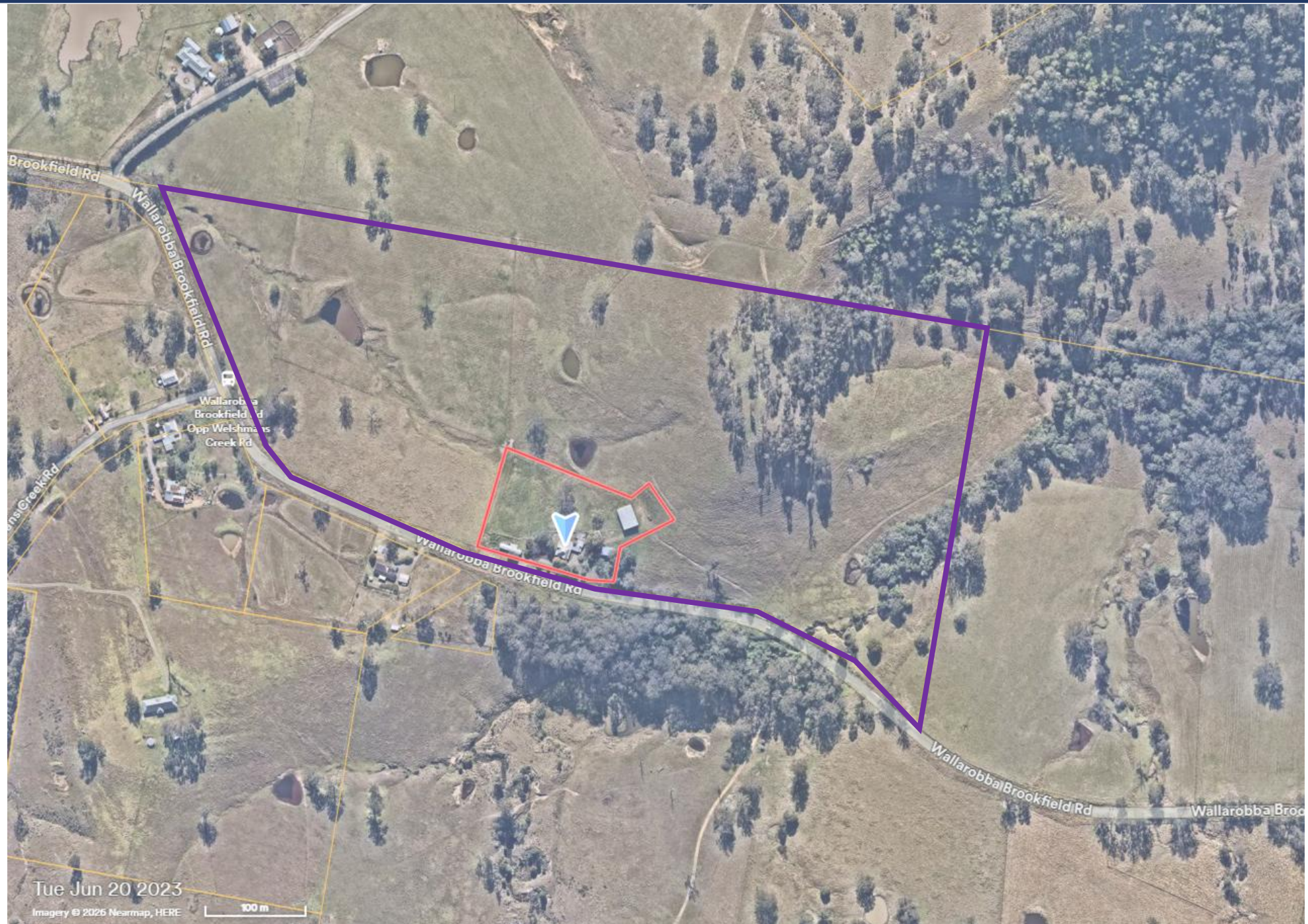
Project:
Preliminary Site Investigation

360 Wallarobba-Brookfield Rd,
Brookfield NSW 2420





360 Wallarobba-Brookfield Rd,
Brookfield NSW 2420



-  Site Boundary
-  Residential dwelling
-  Sheds
-  Carport
-  Livestock shelter
-  Existing stables
-  Existing Barn
-  Storage area

Figure 3:
Investigation Area Layout

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Preliminary Site Investigation

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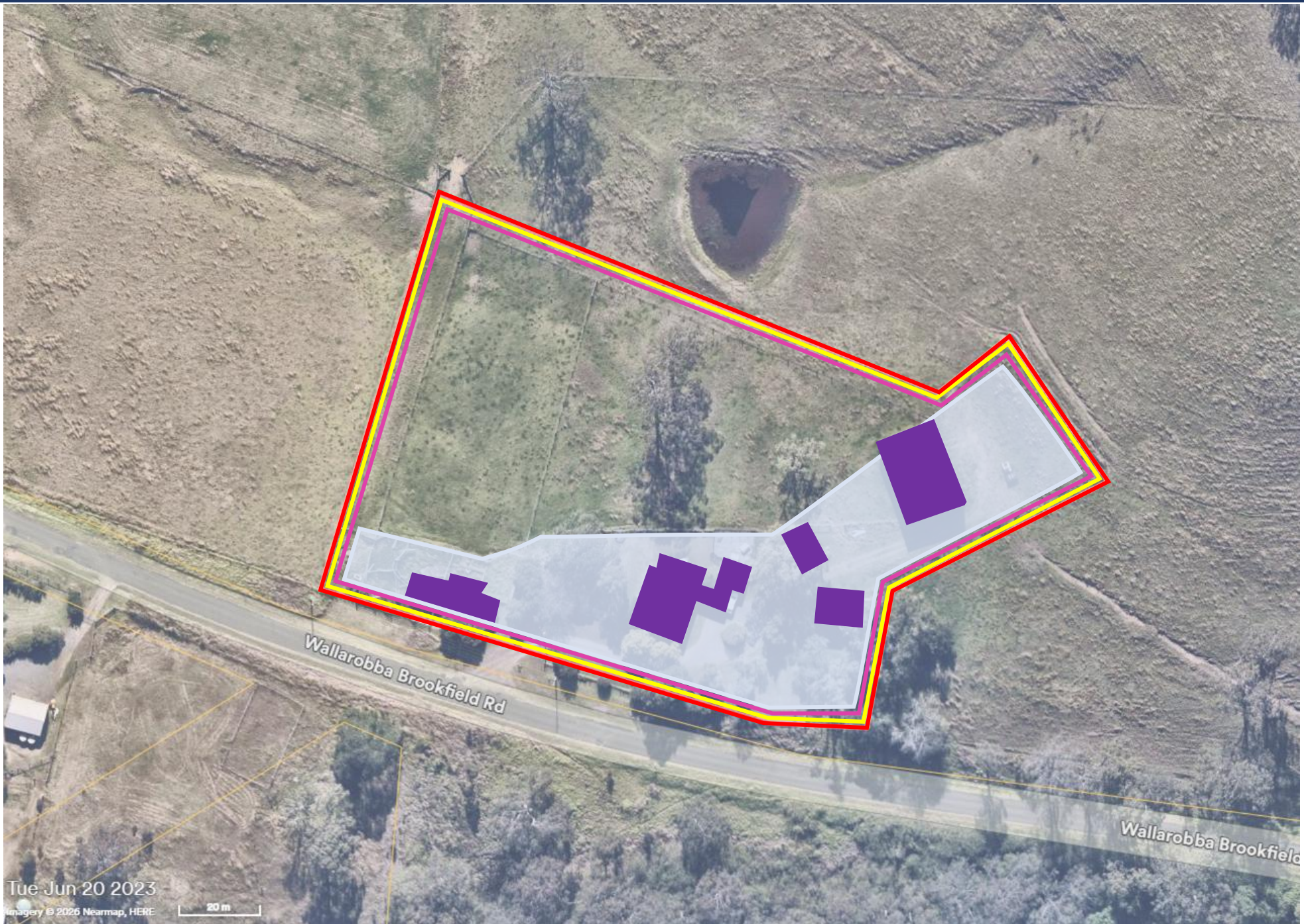


-  Site Boundary
-  AEC 1
-  AEC 2
-  AEC 3
-  AEC 4

Figure 4:
Areas of Environmental
Concern

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Preliminary Site Investigation

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Brookfield NSW 2420



Hydrogeology - Groundwater Bore Map

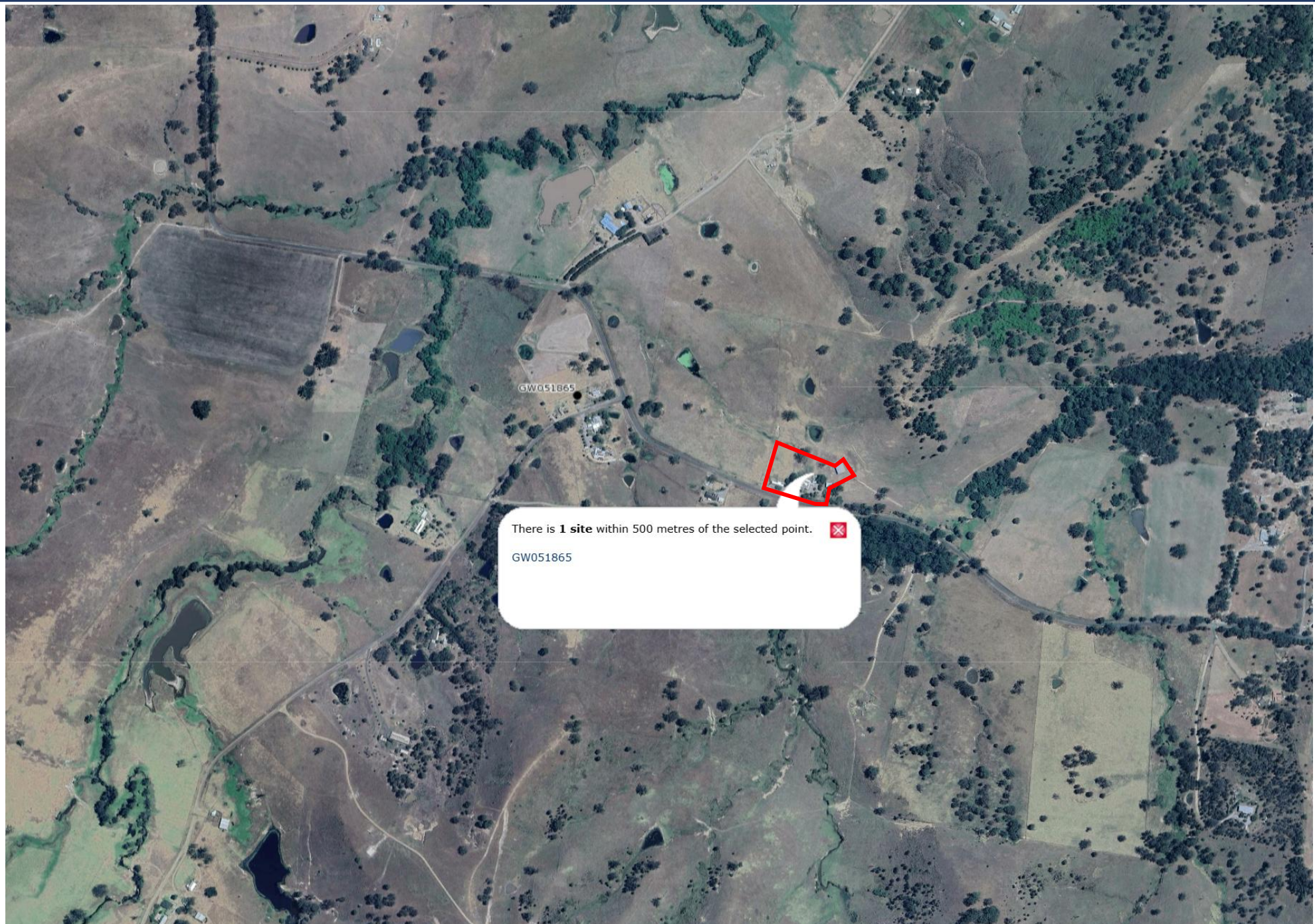


Investigation Area

Figure 5:
Groundwater Map

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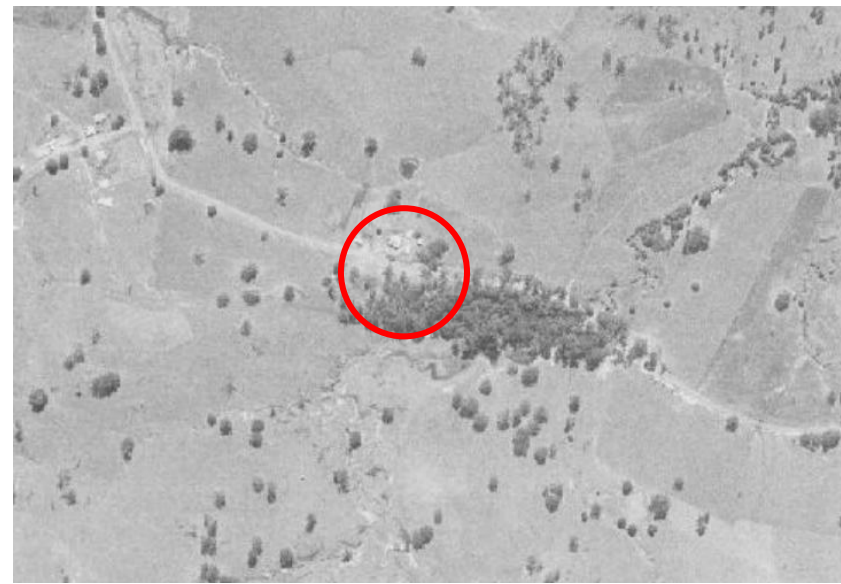


Historical Aerial Photographs

1958



1974



1977



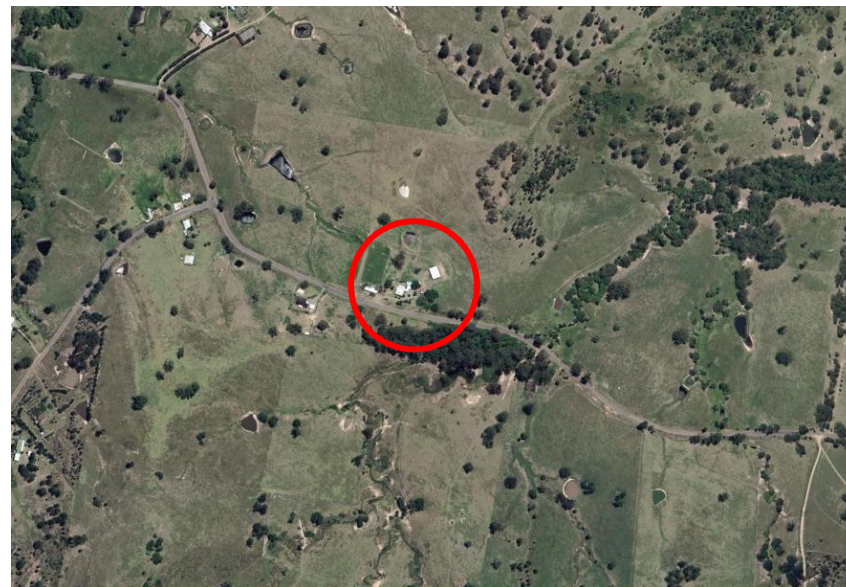
1993



2004



2009



2015



2023



Appendix B: Site Photographs



Photo 1: Overview of the residential dwelling.



Photo 2: Overview of the shed to the eastern section of the investigation area.



Photo 3: View of the surrounding from the eastern boundary of the site.



Photo 4: Overview of the shed located to the eastern section of the site, used for storage.

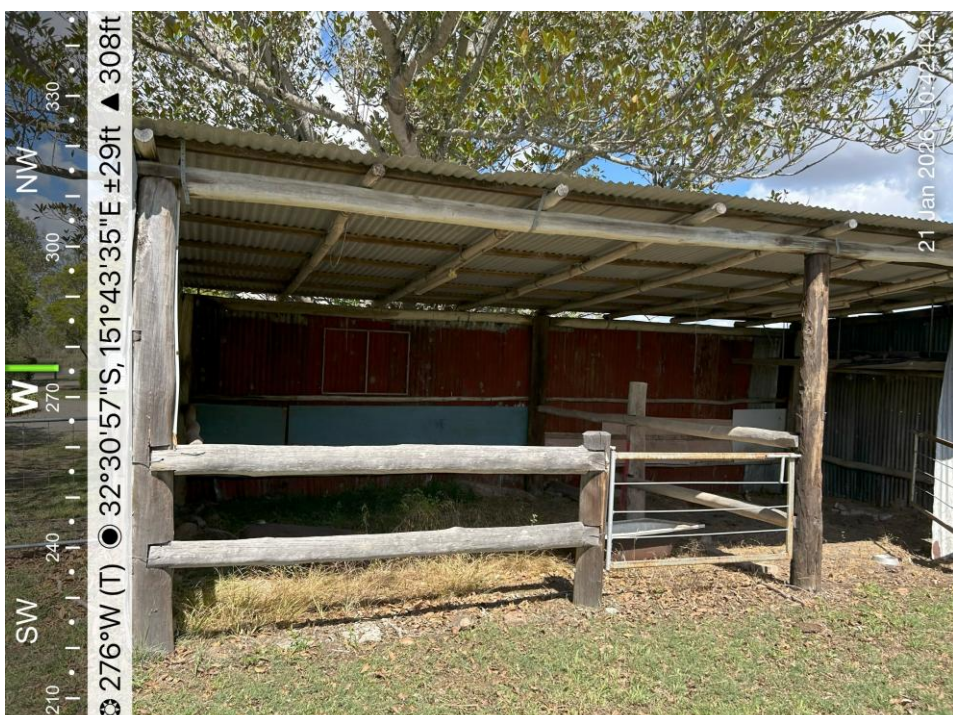


Photo 5: Overview of the shed located to the eastern section of the site.



Photo 6: Overview of the northeastern boundary of the site.



Photo 7: Overview of the dam located north of the site.



Photo 8: Internal view of the northeastern storage shed.



Photo 9: View of the carport adjacent to the eastern side of the residential dwelling.



Photo 10: Overview of the underground septic tank adjacent to the northeastern side of the residential dwelling.



Photo 11: View of the livestock shelter located to the western section of the site.

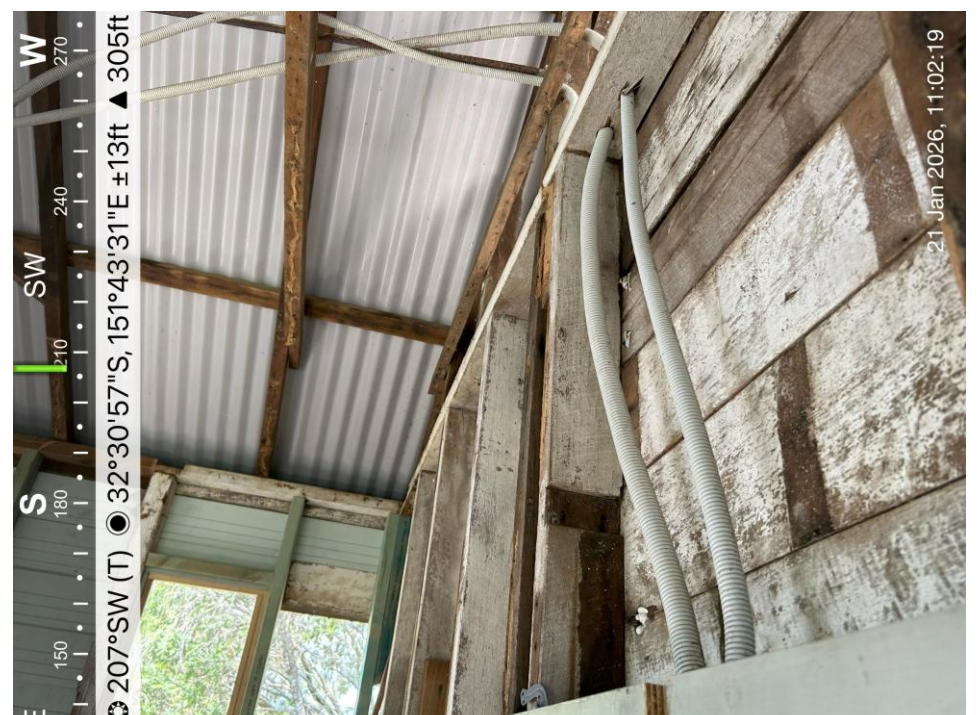


Photo 12: Closeup view of the internal walls of the livestock shelter.