

Wilpinjong Coal Mine

Appendix A
Agricultural Impact Statement

Peabody

Wilpinjong Coal Mine

Gateway Agricultural Impact Statement

Wilpinjong Continuation Project

6/05/2026

DOCUMENT CONTROL

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ACKNOWLEDGEMENT OF ABORIGINAL PEOPLE

We acknowledge and respect Aboriginal and Torres Strait Islander Peoples as the Traditional and Continuing Custodians of Country. We respect and learn from Elders past and present and value their knowledge, insights, cultures and connections to the land and waterways we care for. We are committed to partnering with and listening to Traditional Custodians.

ACKNOWLEDGEMENTS

This report was prepared with support from Resource Strategies and Wilpinjong Coal.

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EXECUTIVE SUMMARY

Report Purpose

Wilpinjong Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia (Peabody), is seeking approval for a proposed extension of the Wilpinjong Coal Mine to maintain production capacity and secure the long-term future of the operation. Located about 40 kilometres north-east of Mudgee in central New South Wales (NSW), the Wilpinjong Coal Mine operates on the traditional lands of the Wiradjuri Nation.

WCPL is seeking approval for the extension of operations into Exploration Licence (EL) 9399 through the development of Pits 9 and 10 (the Wilpinjong Continuation Project), hereafter referred to as the Project, with the intention of accessing additional coal reserves. Approval for the extension is being sought under the State Significant Development (SSD) provisions of the NSW *Environmental Planning and Assessment Act 1979*. As part of this process, the proposal requires a Gateway Certificate in accordance with Clause 30 of the *Environmental Planning and Assessment Regulation 2021*. To support the Gateway assessment, an Agricultural Impact Statement (AIS), along with other required specialist studies, must be prepared and submitted.

This AIS has been prepared to accompany the Gateway Certificate application process in line with the most recent guidelines (NSW Department of Primary Industries and Regional Development, 2024) to assess the application against the criteria relating to agricultural productivity and water resource impacts. Additionally, the Project has the potential to affect agricultural values and in particular the presence of potential Strategic Agricultural Land on site, triggering the requirement for a Gateway Certificate application.

Proposed Project

The Wilpinjong Coal Mine is an established open cut coal mining operation under Development Consent SSD-6764. Mining operations are currently approved until 31 December 2033, with a run-of-mine (ROM) coal production limit of 16 million tonnes per annum (Mtpa). The site comprises eight open cut pits (Pits 1–8), along with extensive ancillary and supporting infrastructure. The Wilpinjong Coal Mine involves a targeted extension of existing open cut mining operations to access additional coal reserves within EL 9399 (Pits 9 and 10).

As part of the proposal, the mine life would be extended by five years, from 31 December 2033 to 31 December 2038, allowing the operation to sustainably manage remaining

resources. Over the life of the project, up to 12 Mtpa of ROM coal would be extracted, resulting in an estimated total recovery of approximately 45 million tonnes (Mt). The Project would also allow for continued employment of the existing open cut operational workforce through to 2038, providing ongoing regional economic benefits and workforce stability.

All freehold land within the Project study area is owned by Peabody and is currently used for agricultural purposes by licensees and lessees.

Gateway Application Area

The Gateway Application Area, located in the Mid-Western Regional Local Government Area (LGA) within the Central Tablelands Local Land Services (LLS) Region, comprises approximately 667 hectares (ha) of agricultural land potentially affected by the Project. The freehold land within the Gateway Application Area is owned and managed by Peabody, with portions leased to land managers for agricultural production. The area is classed as Local Environmental Plan RU1 (Primary Production) and has been primarily used for beef cattle grazing on native and semi-improved pastures.

The dominant soil units across the Gateway Application Area include Chromosols (SMU 1), Dermosols (SMU 2), Kandosols (SMU 3), and Sodosols (SMU 4) (Minesoils, 2026a; Appendix B). The Land and Soil Capability (LSC) of the Gateway Application Area is predominantly Class 4 (212 ha) and Class 6 (212 ha), representing moderate to low capability land. These classes restrict higher-impact uses such as cropping, high-intensity grazing and horticulture, with grazing and nature conservation being the most suitable and existing land uses. Smaller areas comprise Class 3 land (107 ha), which is high capability land with moderate limitations, and Class 5 (71 ha) and Class 7 (65 ha) land, which have high to very severe limitations for intensive agricultural uses (Minesoils, 2026b; Appendix C). In addition, 90.30 ha of verified Biophysical Strategic Agricultural Land (BSAL) (Minesoils, 2026c; Appendix D) has been identified within the Gateway Application Area.

Potential Impacts

An assessment of the potential agricultural productivity of the Gateway Application Area was undertaken through the use of available information, land manager interviews and regional agricultural productivity data. The moderate to low capability land has been and is currently used for grazing beef cattle in self-replacing herd systems. There is currently no high value agricultural production undertaken on BSAL lands within the Gateway Application Area.

Agricultural productivity impacts would occur across the 667 ha Gateway Application Area, which is currently managed under two separate agricultural leases, with the Araluen property comprising one lease and the Barigan / Wandoona properties comprising the second. The

area would be unavailable for agricultural use for the remaining life of the mine, estimated to extend to at least 2038. All existing agricultural infrastructure within this area would be removed. While the current practices at Wilpinjong Coal Mine includes progressive rehabilitation, this assessment adopts a conservative assumption that the Gateway Application Area would remain unavailable for agricultural production until at least 2038. The preferred final landform is natural habitat and as such the use of the area for agricultural production would cease from the commencement of the Project.

Using an averaged regional gross margin value of $319.36/ha for native and semi-improved pasture-based cattle production, the maximum annual agricultural loss associated with the Project is estimated at $213,035. When compared with regional agricultural output, the estimated production value of the Gateway Application Area represents approximately 0.55 percent (%) of the gross value of cattle production in the Mid-Western Regional LGA, 0.11% of production in the Central Tablelands Region, and 0.006% of production across NSW. Neighbouring lands are either owned by Peabody and under similar agricultural lease arrangements or leased by Peabody including the village of Wollar. Rural dwellings owned by WCPL around the Wilpinjong Coal Mine are used for workforce accommodation or leased back to former landowners. Conservation areas, namely Goulburn River National Park and Munghorn Gap Nature Reserve, neighbour the majority of the Peabody owned lands.

Mitigation options

Mitigation measures focus on avoiding impacts where possible. The preferred final landform is native woodland and as such there is no intention to return the land to agricultural production.

Conclusion

This report presents the AIS prepared to support the Gateway Certification application for the Project. The assessment draws on regional and local datasets and outcomes from modelling undertaken within the defined Gateway Application Area. This assessment indicates that the Project would have permanent yet minimal impact on agricultural production at a regional and state scale. Proposed mitigation measures are expected to further reduce any agricultural conflicts, risks, or losses to minor or negligible levels.

The Project would result in only minor and manageable impacts on agricultural production, that are outweighed by the broader benefits of extending the Wilpinjong Coal Mine's operational life. It would enable the recovery of approximately 45 Mt of thermal coal, continued use of existing infrastructure, and continued employment of the existing open cut operational workforce for a further five years. The Project would also generate regional economic flow-on benefits and increase royalty payments to the NSW Government between 2033 and 2038.

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ABBREVIATIONS

AGE	Australasian Groundwater and Environment Consultants Pty Ltd
AIS	Agricultural Impact Statement
AIP	Aquifer Interference Policy
AWS	Automatic Weather Station
BOM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
CIA	Cumulative Impact Assessment
CIC	Critical Industry Cluster
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DECC	Department of Environment and Climate Change
DPE	Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
DPIE	Department of Planning, Infrastructure and Energy
DPIRD	Department of Primary Industries and Regional Development

DSE	Dry Sheep Equivalent
EIS	Environmental Impact Statement
EL	Exploration Licence
EPA	Environment Protection Authority
$GM	Gross margin
GVP	Gross Value of Production
ha	hectares
km	kilometres
Interim Protocol	Interim Protocol for Site Verification of Biophysical Strategic Agricultural Land
LGA	Local Government Area
LLS	Local Land Services
LSC	Land and Soil Capability
M	Millions
m	metres
ML	Mining Lease
mm	millimetres
Mt	million tones
Mtpa	million tonnes per annum
NPWS	National Parks and Wildlife Services
NSW	New South Wales
OEH	Office of Environment and Heritage
PCT	Plant Community Types
Peabody	Peabody Energy Australia
QLD	Queensland
RMP	Rehabilitation Management Plan
ROM	Run-of-mine
SAL	Strategic Agricultural Land
SEPP	*State Environmental Planning Policy*
SLR	SLR Consulting Australia Pty Ltd
SMU	Soil Mapping Unity

SRLUP	Strategic Regional Land Use Plans
SSD	State Significant Development
VLAMP	*Voluntary Land Acquisition and Mitigation Policy*
WCPL	Wilpinjong Coal Pty Limited
WSP	Water Sharing Plan
%	percent

01 INTRODUCTION

The Wilpinjong Coal Mine, located near Mudgee in central New South Wales (NSW) and operated by Wilpinjong Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia (Peabody), has been producing thermal coal since 2006 under long-standing state approvals. Operating across eight open cut pits with progressive rehabilitation underway, the mine is currently approved to continue until 2033 but is expected to reach production constraints within that timeframe. Peabody is seeking approval for the extension of operations into Exploration Licence (EL) 9399 through the development of Pits 9 and 10 (the Wilpinjong Continuation Project), hereafter referred to as the Project.

This Agricultural Impact Statement (AIS) assesses the potential impact of the Project on agricultural production at local, regional and state scales.

01.1 Purpose of this Assessment

Peabody plans to seek approval of the Project under the State Significant Development (SSD) provisions of the *NSW Environmental Planning and Assessment Act 1979*. This development requires the application for, and issue of, a Gateway Certificate for which, amongst other accompanying studies, an AIS is required. This AIS has been prepared in line with the most recent guidelines (NSW Department of Primary Industries and Regional Development [DPIRD], 2024).

01.2 Requirements for a Gateway Agricultural Impact Statement

As part of the Gateway Certificate application process, the criteria of Clause 2.31 (4) of the *State Environmental Planning Policy (Resources and Energy) 2021* (Resources and Energy SEPP) are to be assessed.

Clause 2.31(4)(a) of the Resources and Energy SEPP states:

"*in relation to biophysical strategic agricultural land – that the proposed development will not significantly reduce the agricultural productivity of any biophysical strategic agricultural land, based on a consideration of the following:*

> *(i) any impacts on the land through surface area disturbance and subsidence,*
>
> *(ii) any impacts on soil fertility, effective rooting depth or soil drainage,*
>
> *(iii) increases in land surface microrelief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH,*

(iv) any impacts on highly productive groundwater (within the meaning of the Aquifer Interference Policy),

(v) any fragmentation of agricultural land uses,

(vi) any reduction in the area of biophysical strategic agricultural land."

The *Wilpinjong Coal Mine Rehabilitation Management Plan* (RMP) (WCPL, 2025) pertaining to Mining Leases (ML) 1573, 1779, 1795 and 1846, addresses the requirements of Condition 64, Schedule 3 of Development Consent (SSD-6764).

The final land use statement in the existing RMP is to establish Regent Honeyeater habitat within existing and future mine rehabilitation areas rather than the traditional focus on establishing productive pasture for grazing which has been the previous focus since 2008 (WCPL, 2025). The RMP is reviewed annually and also in relation to any modifications to Development Consent SSD-6764. This AIS addresses the entirety of clause 2.31(4)(a) having regard to the extent of biophysical strategic agricultural land (BSAL) verified within the Gateway Application Area and project disturbance footprint and its impacts to agricultural productivity as a result for each criteria.

Gateway Applications also need to address Clause 2.31(4)(b) of the Resources and Energy SEPP in relation to the presence of, and impacts on, critical industry cluster (CIC) land. There is no mapped CIC land within or proximate to the Gateway Application Area.

01.3 Addressing the Requirements, Policies and Guidelines

01.3.1 Gateway Assessment Guidelines

The Mining and Petroleum Gateway process, established under Part 2.4 of the Resources and Energy SEPP, provides an independent and science-based early assessment of how a proposed mining or coal seam gas development may affect the agricultural values of the land. This pertains particularly to areas identified as highly productive and valued for socioeconomic significance, or Strategic Agricultural Land (SAL). This assessment occurs before a development application is lodged, ensuring that potential impacts on important agricultural resources are understood from the outset.

To pass the Gateway process without conditions, a proposal must clearly demonstrate that it satisfies the criteria relating to agricultural productivity and water resource impacts. Where a proposal does not fully meet these criteria, the Gateway Certificate will include specific requirements or recommendations that must be addressed during the development application stage.

Given that the Gateway Application Area is classed as Local Environmental Plan RU1 (Primary Production) and the Project has the potential to affect agricultural values and in particular the presence of potential SAL on site, a Gateway Application is required.

SAL is defined as highly productive land with distinctive biophysical characteristics and significant socio-economic value and comprises two key categories:

- BSAL – areas containing a rare combination of natural resources that make them particularly well-suited to sustainable agricultural production; and
- CICs – concentrated, interrelated agricultural industries of regional significance, currently recognised as the equine CIC and the viticulture CIC.

These classifications are supported under the NSW planning framework administered by the Department of Planning, Housing and Infrastructure (DPHI). Regional BSAL and CIC mapping remains in effect and continues to delineate the extent of SAL for land-use planning, strategic assessment and the application of the NSW Gateway process for mining and petroleum projects. Mapping and verification of BSAL has continued to rely on the criteria established in the Strategic Regional Land Use Plans (SRLUPs), including the Upper Hunter SRLUP, and the verification process is now guided by the 'Interim Protocol for Site Verification of Biophysical Strategic Agricultural Land' ('Interim Protocol') (NSW Office of Environment and Heritage [OEH], 2013).

The Gateway Application Area for Pits 9 and 10 includes a portion of identified potential BSAL land, therefore triggering the requirement for a Gateway Certificate application. The Gateway Application Area does not sit within a mapped CIC, therefore is not addressed in this AIS.

01.4 Cumulative Impact Assessment Guidelines

The Cumulative Impact Assessment (CIA) Guidelines for SSD (NSW Department of Planning, Industry and Environment [DPIE], 2022) establish clear expectations and requirements for assessing project-level cumulative impacts associated with SSDs. While many cumulative impact issues are managed through broader strategic planning, assessment, and oversight, project-level CIA can be refined to concentrate on the impacts that may emerge from interactions between the project and relevant future projects within the same area and similar timeframes.

Project-level CIA aims to ensure that the assessment:

- Integrates project-specific decision-making with decisions made under the wider strategic planning framework.

- Focuses on the matters that are most important, such as key natural and built features, as well as human health, wellbeing, and social welfare.
- Is proportionate to both the project's impacts and any material cumulative impacts that may arise across the broader area when the project operates alongside other relevant future projects.
- Is technically robust and addresses the unavoidable uncertainties involved in assessing the cumulative impacts of multiple projects over extended periods.
- Results in practical actions that reduce the project's adverse impacts.
- Provides information that supports further strategic-level actions to minimise cumulative adverse impacts from development over time.

Cumulative impacts are fully assessed and quantified during the preparation of the Environmental Impact Statement (EIS) once a Secretary's Environmental Assessment Requirement has been issued.

02 PROJECT DESCRIPTION

02.1 Overview of Wilpinjong Mine

The Wilpinjong Coal Mine is an established open cut coal mining operation, located in the western coalfields of NSW, approximately 40 kilometres (km) north-east of Mudgee and within the Mid-Western Regional Local Government Area (LGA), in central NSW.

The Wilpinjong Coal Mine has been operating since 2006, producing high-quality thermal coal for domestic electricity generation and export to Asia-Pacific markets.

Under Development Consent SSD-6764, mining operations at the Wilpinjong Coal Mine are currently approved until 31 December 2033, with a run-of-mine (ROM) coal production limit of 16 million tonnes per annum (Mtpa). The site comprises eight open cut pits (Pits 1–8), along with extensive ancillary and supporting infrastructure.

Open cut coal extraction has occurred, or is currently occurring, across Pits 1 to 8. Progressive rehabilitation is underway in earlier mining areas, which are in varying stages of completion. Based on current production rates, the operation is expected to reach production constraints by 2033. A separate Modification is also progressing to extend Pit 8, with the associated Modification Report currently under assessment following public exhibition of the application in October 2025.

This AIS relates to a proposed extension of open cut mining into EL 9399 (Pits 9 and 10) to access additional coal reserves. An overview of the Wilpinjong Coal Mine and locations of the Project Gateway Application Area including Pits 9 and 10 are summarised in Figure 02-1 and Figure 02-2.

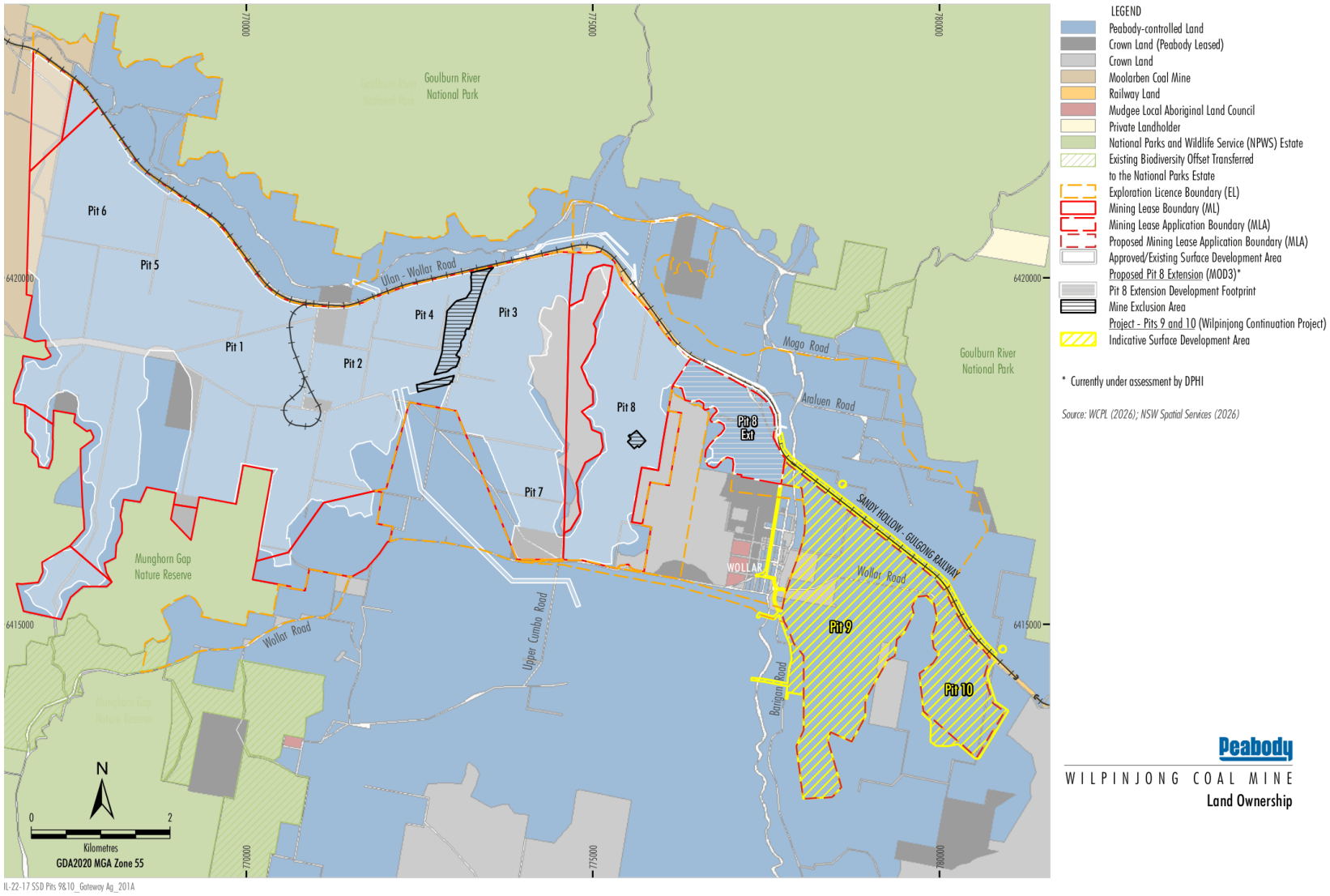


Figure 02-1 Overview of Current Project in Relation to Gateway Application Area (Proposed SSD Pits 9 and 10).

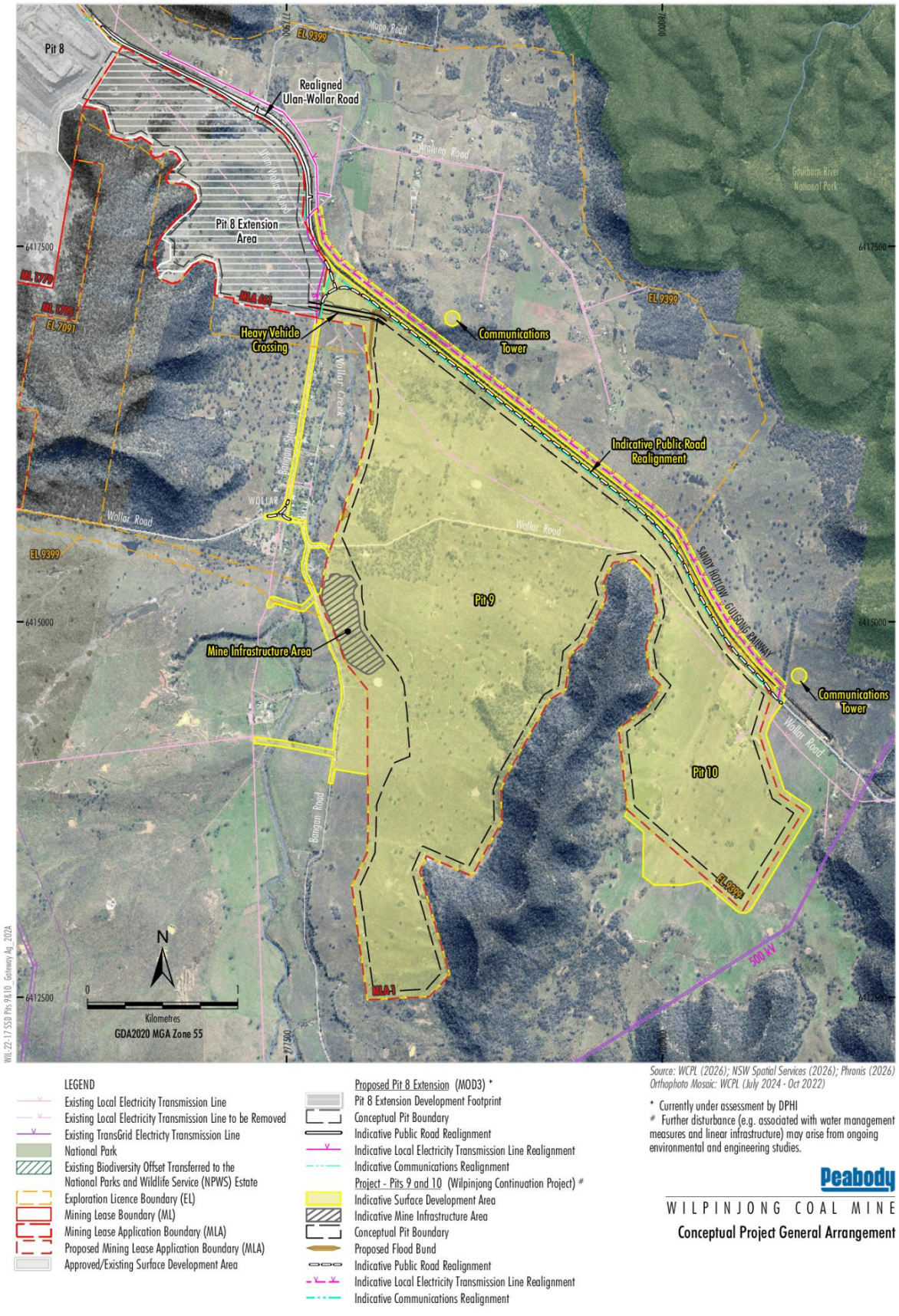


Figure 02-2 Proposed Mining Lease Area (Gateway Application Area).

02.2 Overview of Pit 9 and Pit 10 Extension

The Project involves extension of existing open cut mining operations to access additional coal reserves within EL 9399. As part of the proposal, the mine life would be extended by five years, from 31 December 2033 to 31 December 2038, allowing the operation to sustainably manage remaining resources.

Over the life of the Project, up to 12 Mtpa of ROM coal would be extracted, resulting in an estimated total recovery of approximately 45 million tonnes (Mt). Presently WCPL employs approximately 700 personnel and the Project would allow for the continuation of employment opportunities through to 2038, providing ongoing regional economic benefits and workforce stability.

Mining activities would continue utilising the existing mobile fleet, with optimisation and upgrades to specific equipment and trucks where required. Standard open cut mining practices, including drilling, blasting, loading, and hauling, would remain the core of operational activities. The Project also includes the use of associated infrastructure, plant, equipment, and supporting activities essential for safe and efficient mining operations.

All freehold land within the Project study area is owned by Peabody and is currently used for agricultural purposes by licensees and lessees.

02.3 Mining Operations

The mining operation method would not materially change for the proposed Project other than extending the mining area by a further 667 hectares (ha). Assuming the Project would commence in 2030, the Project would conclude in December 2038 including backfilling of the void. As such the following operations would continue in the same approved methods under the current Development Consent SSD-6764:

- Mining method (drilling and blasting);
- Waste rock management;
- Annual waste rock production;
- Coal washing and handling systems;
- Coal transport systems including current train loading infrastructure and train routes;
- Coal rejects management;
- Water supply and disposal;
- Hours of operation;

- General infrastructure; and
- Operational and construction workforce.

Open cut mining activities and associated mobile equipment movements at the Wilpinjong Coal Mine would continue to be undertaken 24 hours per day, seven days per week, subject to compliance with relevant environmental management criteria (e.g. real-time air quality and noise operational trigger levels).

02.4 Construction Activities

Construction activities would occur throughout the life of the Project, with key construction activities associated with the Project including the construction of a heavy vehicle haul road and bridge crossing over Wollar Creek to connect Pits 9 and 10 to the Pit 8 Extension Area and a new Mining Infrastructure Area, including maintenance workshop, re-fuelling facilities, crib facilities, administration building and other supporting infrastructure adjacent to Pit 9. A re-alignment and upgrade of Wollar Road would be necessary to facilitate the construction of Pits 9 and 10. The relocation of some infrastructure including local electrical transmission lines and telecommunication systems would also occur. The development of additional water management infrastructure would also occur progressively over the life of the Project.

02.5 Water Management

The existing water management system at the Wilpinjong Coal Mine would continue to support ongoing mining activities. In addition, there would be a sump left in the northern corner of Pit 9 which is the deepest part of the pit. Groundwater would naturally fall to this point. Pumps would be set up here for water transfer to Pit 2 or (potentially) a new Reverse Osmosis plant for water treatment. There would also be a potential newly licensed discharge point from Pit 9 to Wollar Creek and flood protection would be required along the Pit 9 highwall from Wollar Creek. Overall, there would be no final void in Pit 9 or 10 remaining by 2038.

02.6 Project Rationale and Alternatives

The proposed extension of the Wilpinjong Coal Mine into EL 9399 is essential to securing the long-term viability of a critical energy and economic asset for NSW. As existing pits approach their approved production limits and are forecast to reach operational constraints by 2033, accessing additional coal reserves is necessary to maintain continuity of supply to domestic energy markets and key Asia-Pacific customers. The extension supports stable employment for the region, sustains local procurement and contracting opportunities, and underpins ongoing investment in community and environmental programs. By leveraging existing infrastructure and progressively rehabilitated areas, the Project enables efficient resource recovery while minimising additional land disturbance. Beyond direct jobs, the Project would

support a broad range of local and regional businesses through procurement, contracting, and service provision, generating substantial economic flow-on benefits across the Mid-Western Regional economy. Continued operations would also contribute to State revenue through increased royalty payments to the NSW Government between 2033 and 2038, supporting public services and regional investment. Overall, the proposed development provides a strategic, responsible pathway to extend the mine's productive life, maintain regional economic resilience, and ensure the reliable supply of high-quality thermal coal during the transition to future energy systems.

03 REGIONAL AGRICULTURE OVERVIEW

The Project is situated in the Mid-Western Regional LGA, part of the Central Tablelands Local Land Services (LLS) Region (Figure 03-1). Information relating to agricultural resources and production within the Central Tablelands LLS region is summarised below.

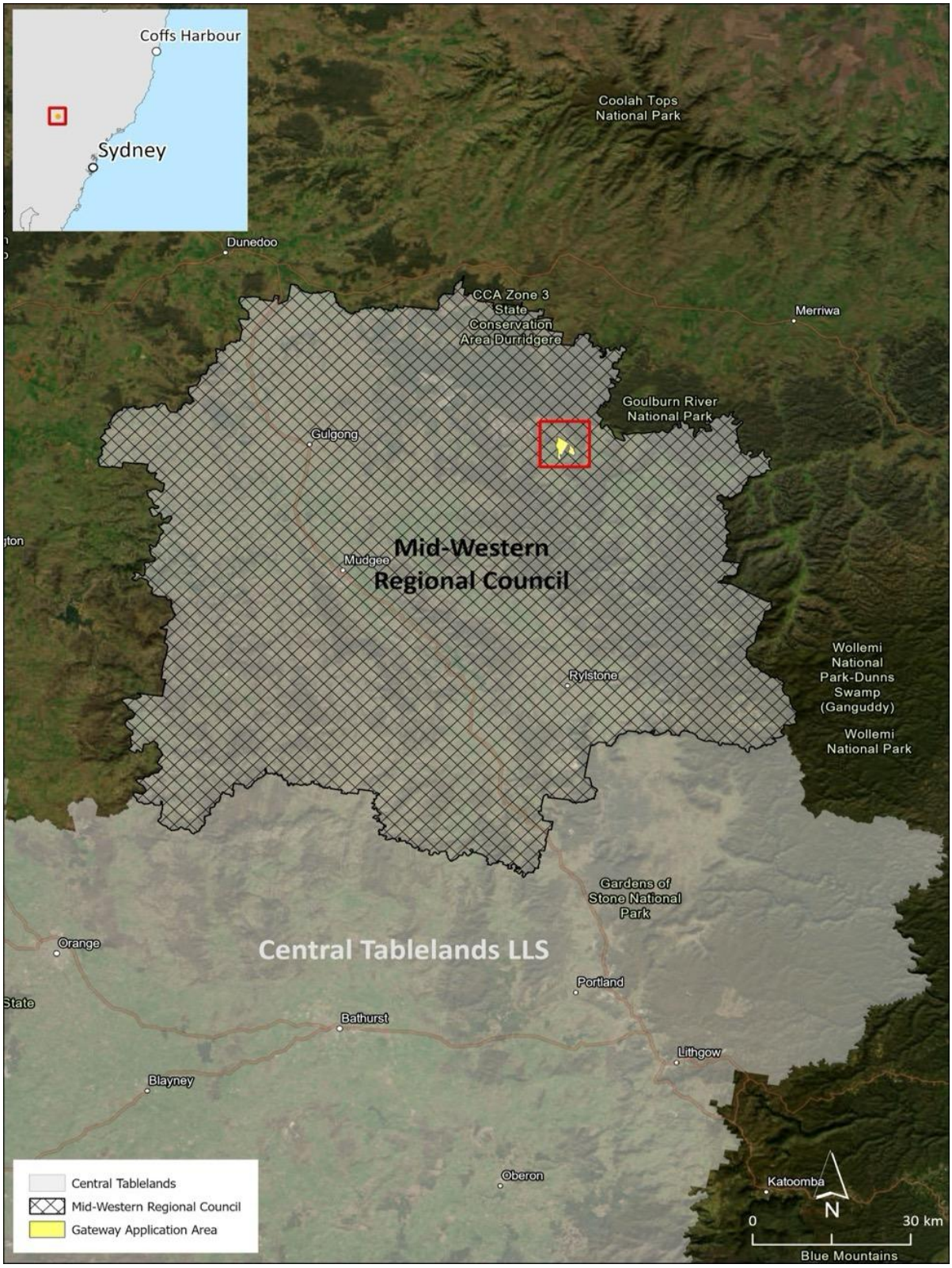


Figure 03-1 Central Tablelands LLS Region (LLS, n.d.; NSW Local Government Areas, November 2025).

03.1 Central Tablelands

The Central Tablelands LLS Region (LLS Region) is located in central NSW and covers an area of approximately 31,365 kilometres squared (km^2) (NSW LLS, 2025). The LLS Region includes the major towns of Bathurst, Blayney, Cowra, Lithgow, Molong, Mudgee, Oberon and Orange; falls predominantly within Wiradjuri Aboriginal Country; and has a population of 156,000 residents. Major industries include large retail centres, a campus of Charles Sturt University, mining, tourism and agriculture. The LLS Region comprises 8 LGAs and makes up 3 percent (%) of the Murray-Darling Basin (Australian Bureau of Statistics [ABS], 2022).

Agriculture is a key industry for the LLS Region and contributes approximately 4.2% of NSW's annual value of agricultural production. Approximately 7% of the LLS Region population is employed in the Agriculture, Fisheries and Forestry sector. In terms of Gross Value of Production (GVP), beef production is the main livestock industry, with wool and sheep meat production also significant (NSW Department of Primary Industries [DPI] 2020). Other agricultural activity includes cropping, grazing, irrigated farming, broad acre crops and horticultural enterprises including areas of fruit and vegetable growing and viticulture (NSW LLS, 2025). During 2019-2020, agriculture in the LLS Region generated $760 million, with the highest contributing industries including cattle, sheep and lamb, and forestry production (Table 03-1).

Table 03-1 Value of Agricultural Commodities Produced in the Central Tablelands 2020-21 (DPI, 2022a).

Commodity Description	GVP ($)
Cattle and calves	$198,405,023
Sheep and lambs	$118,879,950
Forestry	$106,584,268
Wool	$81,297,244
Eggs	$49,840,555
Apples	$33,828,215
Wheat	$82,726,419
Hay	$77,504,292

Commodity Description	GVP ($)
Canola	$35,998,449
Milk	$19,525,617
Total Agriculture	**$934,412,249**

GVP = gross value of production at the point of sale (i.e. where it passes out of the agriculture sector of the economy).

03.2 Mid-Western Regional Local Government Area

The Mid-Western Regional LGA (Figure 03-2) covers an area of 8,752.3 km^2 and supports a population of 26,214 people (Mid-Western Regional Council, 2025a). This LGA is approximately 210 km north-west of Sydney, 250 km west of Newcastle and 300 km north of Canberra (Mid-Western Regional Council, 2025a). The LGA spans from just west of the Great Dividing Range to the boundary of the Dubbo-Narromine-Wellington region. The major towns within the LGA include Mudgee and other smaller towns including Gulgong, Kandos and Rylestone (Mid-Western Regional Council, 2025a). The Castlereagh and Great Western highways connect Mudgee with Sydney, and the Golden Highway connects to Dubbo and Newcastle. These connections in addition to the rail network provide opportunities to move agricultural products to domestic and export markets (NSW Department of Planning and Environment [DPE], 2017).

The LGA offers a range of industry sectors including mining, retail, agriculture, healthcare and construction, and attracts over 730,000 visitors each year to experience local wine, food, heritage and natural scenery (Mid-Western Regional Council, 2025a). In 2017, mining accounted for 15% of employment followed by retail services at 11.9% and agriculture at 10% (NSW DPE, 2017). The LGA contains areas of highly productive agricultural land and is renowned for its wineries. The LGA is dominated by expanding coal mining, having grown by 352% between 2014 and 2024 (Mid-Western Regional Council, 2025b) and contributing $4,490.925 Million (M) annually. Secondary to mining are rental, hiring and real estate services (5.1%) and industries in agriculture, forestry and fishing (3.5%) (Table 03-2). Total gross annual income in the region is approximately $6,188.48 M (REMPLAN, 2025).

Table 03-2 Mid-Western Regional LGA Gross Revenue Generated by Businesses Across Industry Sectors (REMPLAN, 2025).

Industry Sector	Mid-Western Regional LGA	
	Dollars ($Million)	Contribution to the Region (%)
Mining	$4,490.93	72.6%
Rental, Hiring & Real Estate Services	$315.72	5.1%
Agriculture, Forestry & Fishing	$214.01	3.5%
Construction	$173.22	2.8%
Health Care & Social Assistance	$168.99	2.7%
Education & Training	$105.80	1.7%
Retail Trade	$102.35	1.7%
Manufacturing	$90.58	1.5%
Public Administration & Safety	$88.18	1.4%
Professional, Scientific & Technical Services	$74.67	1.2%
Accommodation & Food Services	$67.21	1.1%
Financial & Insurance Services	$53.56	0.9%
Electricity, Gas, Water & Waste Services	$53.05	0.9%
Wholesale Trade	$49.82	0.8%
Transport, Postal & Warehousing	$40.47	0.7%
Other Services	$40.15	0.6%
Administrative & Support Services	$31.21	0.5%
Information Media & Telecommunications	$16.83	0.3%
Arts & Recreation Services	$11.73	0.2%

Industry Sector	Mid-Western Regional LGA	
	Dollars ($Million)	Contribution to the Region (%)
Total	**$6,188.48**	**100.00%**

Figure 03-2 shows the Mid-Western Regional LGA contributions to agricultural GVP in context of all LGA's within the LLS Region. According to 2015/2016 Australian Bureau of Statistics data, the Mid-Western Regional LGA contributed to 3.4% (i.e. approximately $90.5 M) of the Central Tablelands Regional agricultural GVP (Figure 03-2), the largest contributors being $45.68 M from beef cattle, $17.9 M from wool production and $12.46 M generated by sheep for meat (NSW DPI, 2020).

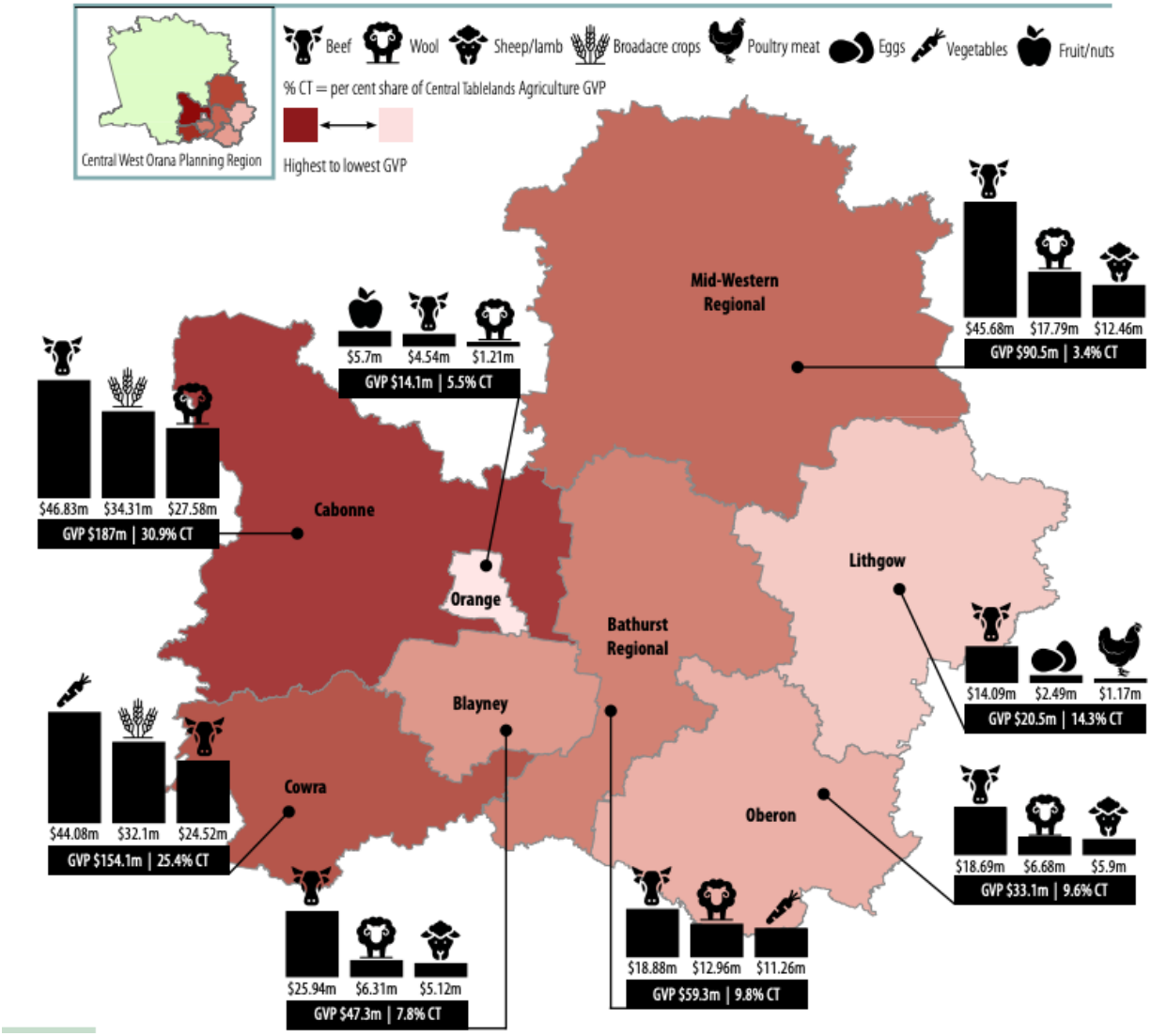


Figure 03-2 Agriculture Industry Snapshot for the Central Tablelands LLS Region (DPI, 2020).

03.3 Local and Regional Environment

03.3.1 Climate

The Gateway Application Area is classified as part of the South Western Slopes bioregion, and is dominated by a sub-humid climate, characterised by hot summers and no dry season (National Parks and Wildlife Services [NPWS], 2003). The Central Tablelands sub region is regarded as being a high rainfall zone with rainfall distributed evenly across the year totalling from 600 to 1000 millimetres (mm) and temperature is variable (NSW DPI, 2020).

Representative climate data for the area has been obtained from the Bureau of Meteorology (BOM) weather station located at Mudgee Airport Automatic Weather Station (AWS) NSW (062101). Mudgee has a mean annual rainfall total of 665.3 mm. Rainfall is generally uniformly spread across the year with August being the lowest rainfall month. The maximum mean

temperature of the hottest month is 30.9 ºC in January and minimum mean temperature of the coolest month is 1.3 ºC in July. Other BOM statistics for Mudgee are detailed in Table 03-3 (BOM, 2025).

Table 03-3 Bureau of Meteorology Statistics for Mudgee Airport AWS NSW (062101). Temperature Data from 1990 to 2025; Rainfall Data from 1994 to 2025 (BOM, 2025).

Description	Parameter
Mean maximum temperature of hottest month (January)	30.9 °C
Mean minimum temperature of hottest month (January)	16.1°C
Highest recorded temperature (February 2017)	43.9 °C
Mean maximum temperature of coolest month (July)	14.6 °C
Mean minimum temperature of coolest month (July)	1.3 °C
Lowest recorded temperature (July 2002)	-7.7 °C
Mean annual rainfall	665.3 mm
Mean number of rain days (> 1 mm)	61.9

The monthly distribution of temperature and rainfall is recorded at Mudgee Airport AWS NSW (062101) and is presented in Figure 03-3.

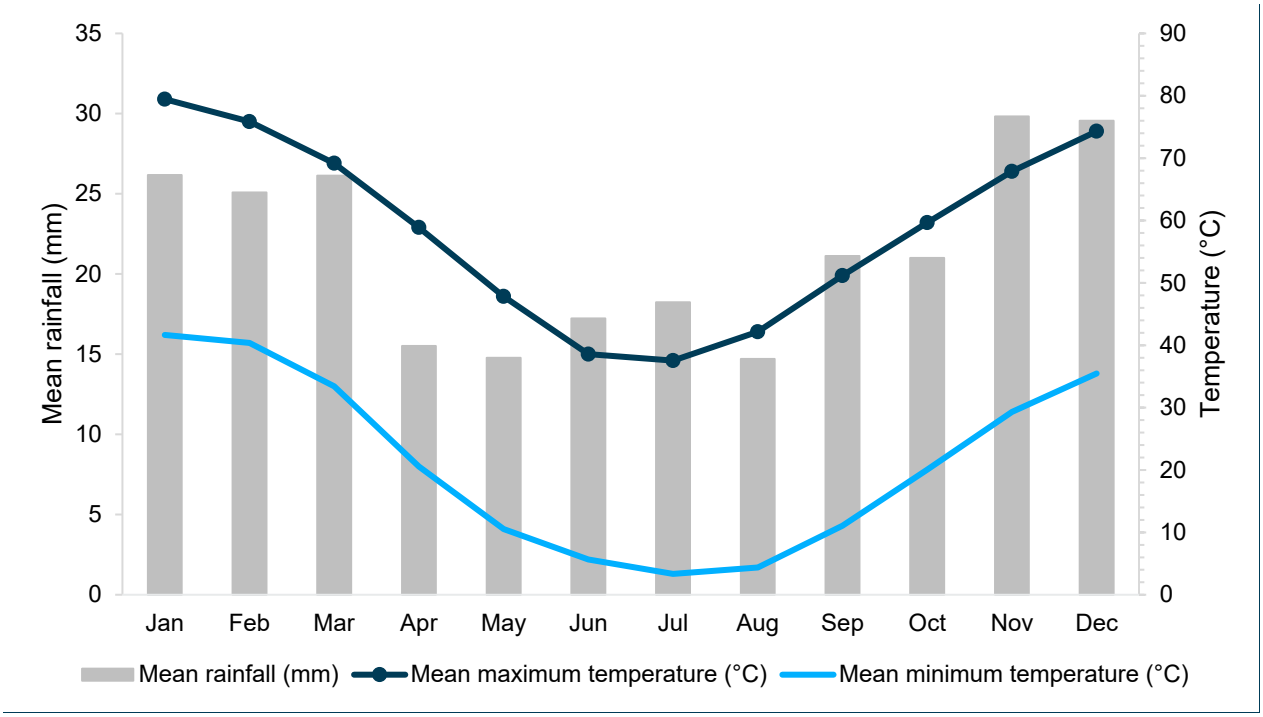


Figure 03-3 Mean Rainfall (mm) and Mean Maximum and Minimum Temperatures at the Mudgee Airport AWS NSW (062101) (BOM, 2025).

03.3.2 Geology and Landform

The Gateway Application Area is located in the western part of the Sydney Basin in the Western Coalfield, which contains sedimentary rock of Triassic and Permian age, including coal measures. The Illawarra Coal Measures, consisting of siltstones, sandstones, claystones and coal seams, contain the coal seams mined by the existing Wilpinjong Coal Mine.

The Triassic-aged sandstones overlie the Permian coal measures. Large extents of the Triassic strata are unsaturated, either naturally or from dewatering caused by previous mining activities. Perched water tables might be sustained at high elevations due to the presence of occasional lower permeability beds between the sandstone layers (Australasian Groundwater and Environment Consultants Pty Ltd [AGE], 2022).

Recharge to the groundwater system occurs by the direct infiltration of rainfall and downward percolation through the near surface weathered rock. Recharge to the deeper units within the Permian coal measures predominantly occurs by downward seepage into the units where they subcrop beneath the alluvium or weathered rock cover (AGE, 2022).

03.3.3 Groundwater Use

Groundwater use in the vicinity of the Project is regulated by the NSW Government, with two Water Sharing Plans (WSPs) regulating the volumetric allocation of groundwater to each user:

- the WSP for the North Coast Fractured and Porous Rock Groundwater Sources 2016; and
- the WSP for the Hunter Unregulated and Alluvial Water Sources 2022.

The Wollar Creek Water Source, associated with the *WSP for the Hunter Unregulated and Alluvial Water Sources 2022*, is the main highly productive groundwater source in the vicinity of the Project (SLR Consulting Australia Pty Ltd [SLR], 2026). The highly productive alluvium of the Wollar Creek Water Source as defined by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) is mapped along Wollar Creek and along Wilpinjong Creek (SLR, 2026).

The Sydney Basin North Coast Groundwater Source, associated with the *WSP for the North Coast and Fractured and Porous Rock Groundwater Sources 2016*, is the main less productive groundwater source in the vicinity of the Project (SLR, 2026).

A search of the NSW Bore Database was undertaken in January 2023 for bores within or near the proposed Pit 9 and Pit 10. This was compared to the results of a bore census completed in February 2005 (WCPL, 2005) as part of the Wilpinjong Coal Mine EIS, an additional investigation of private groundwater bore locations and use undertaken in 2015 to support the Wilpinjong Extension Project EIS Groundwater Assessment (HydroSimulations, 2015) and the register of Peabody owned land.

No additional private groundwater bores were identified in the vicinity of the Gateway Application Area during the January 2023 search of the NSW Bore Database (SLR, 2026).

The 2015 investigation found that bores on public or private land in the vicinity of the Gateway Application Area is limited to one bore at the former Wollar Public School (understood not to be registered) that is used for watering recreational areas and gardens (SLR, 2026). This bore accesses groundwater from the less productive Sydney Basin North Coast Groundwater Source. The Wollar Public School is now closed.

Three registered bores are located within the footprint of Pit 9. GW080127 is a 3.78 m deep hand-dug well located on the western side of Pit 9, approximately 200 m from Wollar Creek, and GW056057 is a 54.6 m deep bore situated in the central to southern part of Pit 9; neither bore has an associated water licence (SLR, 2026). GW051150 is located in the northern part of Pit 9 and is a 31.5 m deep bore with an estimated yield of 2.25 litres per second (L/s) and associated to a Basic Landholder Right (20BL113573) (SLR, 2026).

One registered bore is located within the footprint of Pit 10. GW203900 was drilled to a depth of 144 m with an estimated yield of 6 L/s and is associated with a Basic Landholder Right (20BL170487) (SLR, 2026). Three additional bores were identified near GW203900 during a previous survey; however, no further information is available (SLR, 2026).

03.3.4 Vegetation

The Gateway Application Area and surrounds have been cleared for agricultural use, predominantly grazing and occasional fodder cropping. The Gateway Application Area is currently used for grazing. A total of nine Plant Community Types (PCTs), as mapped in the NSW SEED Vegetation Data Portal (NSW Government, 2024), occur within the Gateway Application Area:

- *PCT 3334* – Western Hunter Flats Red Gum Sedge Forest.
- *PCT 3388* – Central West Valleys White Box Forest.
- *PCT 3396* – Northwest Slopes Box–Blakely's Red Gum Woodland.
- *PCT 3404* – Central West Flats Grassy Box Woodland.
- *PCT 3405* – Central West Flats Inland Grey Box Grassy Forest.
- *PCT 3497* – Western Hunter Escarpment Slaty Gum–Pine Forest.
- *PCT 3528* – Western Hunter Flats Apple–Gum Shrub Forest.
- *PCT 3532* – Western Hunter Ironbark–Box Forest.
- *PCT 3780* – Goulburn River Ironbark–Bloodwood Heathy Forest.

03.3.5 Surrounding Land Use

According to NSW land use mapping, activities other than mining in the vicinity of the Gateway Application Area include agricultural enterprises (grazing and dryland cropping). Much of the land surrounding the Gateway Application Area consists of Peabody owned land and is subject to a number of grazing leases (Figure 02-1). The predominant land uses within the Gateway Application Area based on NSW land use mapping is grazing on modified pastures (351.46 ha), followed by cropping and grazing on native vegetation, as shown in Table 03-4 and Figure 03-4.

Table 03-4 Land Use Types by Area (ha) within the Gateway Application Area. Data Sourced from Land Use Mapping (DPIE, 2021).

Land Use	Area (ha)
1.3.3 Residual native cover	1.01
2.1.0 Grazing native vegetation	123.18
3.2.0 Grazing modified pastures	351.46
3.3.0 Cropping	181.35
5.4.5 Farm buildings/infrastructure	2.83
5.7.2 Roads	7.19
5.7.3 Railways	0.04
Total	**667.07**

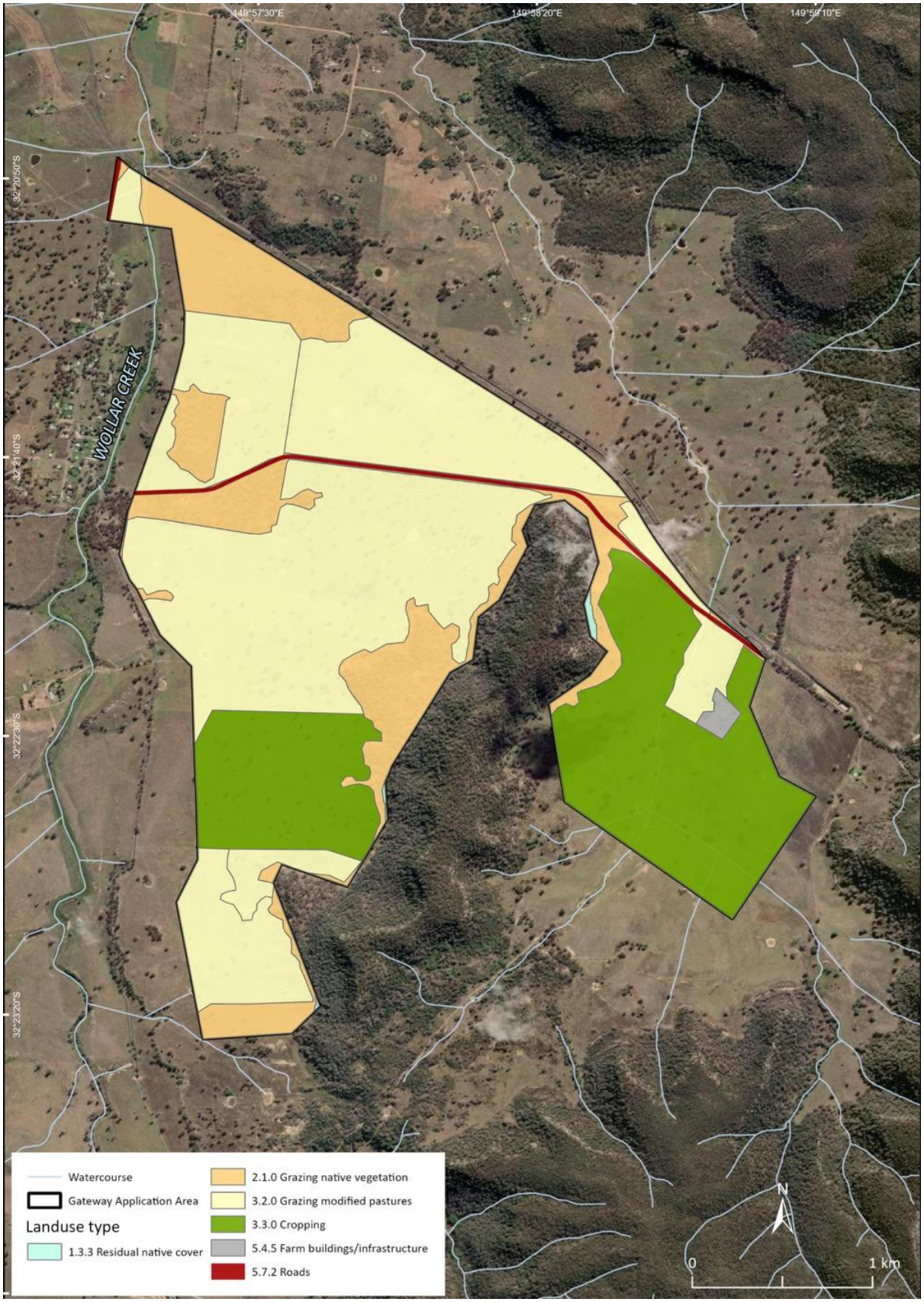


Figure 03-4 Land Use Types within the Gateway Application Area (NSW DPIE, 2021).

04 CONSULTATION

04.1 Wilpinjong Continuation Project Consultation

Site specific agricultural production information was collected through onsite interviews with current land managers. This chapter presents the information gathered and derived from this interview information. Land managers were asked to consider production potential in relatively good years, rather than longer term average years. To provide a conservative estimate of the impact of the Project on potential agricultural production, these higher production estimates were elicited from regional production data and averages (Section 05).

While freehold land within the Gateway Application Area is now owned and managed by Peabody, portions of the Gateway Application Area are currently leased to two land managers for agricultural production comprising predominantly of beef cattle grazing on native pastures and small areas of opportunistic fodder crop production when seasonal conditions allow. Land managers were contacted by Peabody to agree to consultation regarding their agricultural systems and production (Section 04.2). Two land manager interviews were conducted in-person on the 18th of November 2025 (Table 04-1). Land manager interview responses are detailed in Appendix A.

Table 04-1 Landholdings, Lessees and Interview Status.

Land Manager	Property Name	Interviewed
1	Araluen	Yes (in-person)
2	Barigan and Wandoona	Yes (in-person) and written response to survey questions also provided by land manager

Consultation was undertaken using a semi-structured interview method. Each interview covered the following topics:

- Property history;
- Land manager local experience;
- Key agricultural systems;
- Typical yield/production;
- Major suppliers of materials and services;
- Number of employees;
- Water sources;
- Main markets; and

- Key agricultural infrastructure.

Interview details are provided in Section 04.2.

04.2 Land Manager Interviews

04.2.1 Land Manager 1

The Araluen property, with a total lease area of 1,614 ha is considered suitable for grazing and other limited land uses requiring careful management to reduce the risk of land degradation. Comments from the land manager confirm that, prior to Peabody's management, grazing beef cattle and some wheat cropping had been undertaken historically some 20 years ago (Appendix A Table A1).

Current agricultural practices on Araluen are limited to beef cattle grazing, using a cross bred self-replacing herd system consisting of around 280 Angus and Shorthorn breeding stock (Figure 04-1) and occasional (approximately once every 3 years) opportunistic fodder cropping on a small (100 ha) area, although this is not undertaken within the Gateway Application Area. The Gateway Application Area comprises only 57.5 ha of this property mostly restricted to one paddock, known as 'Billy's Block'. The paddock is intersected by Wollar Creek and is used for fattening approximately 70 steers for around 6 months of the year (Figure 04-1; Table 04-2).

The land managers apply a rotation of pasture improvement (a mix of lucerne, ryegrass, fescue and arrowleaf clover) and fertiliser application (single super-phosphate) across the property. Sections of the property are treated based on the results of annual soil testing. Biosecurity threats to agricultural production include heavy weed infestations of Saffron Thistle (*Carthamus lanatus*), St John's Wort (*Hypericum perforatum*), and Blue Heliotrope (*Heliotropium amplexicaule*).

Pest animals, namely pigs and kangaroos, impact pasture availability for production. Water is mainly sourced from a bore on the northeastern side of the property which is serviced by a solar pump, tank and reticulated trough system. This bore is reliable and provided the only source of water throughout the 2019 drought. A secondary source of water is Wollar Creek which intersects the proposed Gateway Application Area. A smaller bore situated near Wollar Creek provides a short-term supplementary water source for less intense drought periods.

A rotational grazing system is implemented across the property and rotations are driven by a combination of stock requirements and groundcover condition, which is maintained at 90% groundcover as per their lease arrangement. Employment of staff is restricted to core family members, and all services are accessed locally from Mudgee. The sale of cattle is via local

stock and station agents at the local Mudgee Regional Saleyard facility. The bulk of the cattle sold are purchased by a number of local and distal feed lotters in the Riverina district.



Figure 04-1 Property Leased by Land Manager 1, Araluen. Green Areas are Nearest Wollar Creek and are the Main Water Source in the Paddock (-32.350531, 149.950706).

Table 04-2 Total Cattle Sales for an Average Year Araluen.

Cattle Type	Number Sold Annually
Steers	70
Cull for age or breeding selection (15% of herd)	42

04.2.2 Land Manager 2

Manchee Agriculture Pty Ltd (Manchee Agriculture) holds a grazing lease area of 5,667 ha over two properties, Barigan and Wandoona. Comments from the land manager confirm that, prior to Peabody's management, beef cattle grazing was undertaken (Appendix A Table A1). At the time of consultation, agricultural practices on the Barigan and Wandoona properties included beef cattle grazing and opportunistic fodder cropping, although this fodder cropping occurs outside of the Gateway Application Area (Figure 04-2 to Figure 04-5). The Project would remove a large portion of total property on the eastern side to Barrigan Road, impacting 558.8 ha of the leased land on the eastern side of Wollar Creek and surrounding a large rocky outcrop that runs north-northeast and south-southwest through the property (Figure 04-3 and Figure 04-5).

Barigan and Wondoona are run by a manager and three station hands. Manchee Agriculture is a beef-breeding operation focused on profitability and carcase data, with an emphasis on paddock-to-plate genetics. In addition to supplying regional markets, Manchee Agriculture has a joint venture with Signature Beef, which sells branded boxed beef to 29 countries around the world, mainly the United States of America, United Kingdom, Korea, and Japan. Additionally, the producer sells genetics right across Australia with their bulls joining approximately 120,000 head of females a year for clients.

Beef cattle consist of a cross-bred, self-replacing, and enclosed herd system including Belmont Red–-Santa Gertrudis and Belmont Red–Angus cross sires, paired with Santa Gertrudis cross, Shorthorn, and Brahman dams. The land manager also breeds Shorthorn cross Belmont Red breeding stock for specific markets, and these make up the base herd. Opportunistic annual fodder cropping, undertaken on the western side of the property (outside the Gateway Application Area) are sown with oats to feed up keeper heifers and steers prior to being sent to feedlots. Fertiliser is used to support growth of these fodder crops.

The lease supports between 400-900 breeding cattle depending on seasonal conditions. Weaner bull and heifer calves deemed standard to breed are retained while the remainder are castrated and sent on consignment to feedlots in Queensland (QLD) and the Riverina. Cull-for-age or non-productive stock (approximately 10-20% depending on the season) are sold at Scone or other saleyards but never at local Mudgee Regional Saleyards. A main income stream is the sale of approximately 300 bulls annually at a price of $6,000 - $10,000 per head.

Rotational grazing techniques are practiced across the properties, ensuring 90% of groundcover is maintained to both minimise soil erosion and increase carbon sequestration. Herd rotations are assessed based on pasture condition and herd needs at the time and are reliant on the seasons and stage of production for each herd. Additionally, weekly feed budgets and cattle stocking rates are assessed following techniques adopted from Natural Sequence Farming (Norris & Andrews, 2010; Williams, 2010).

The main water sources are from Wollar Creek (ephemeral) and western bores, and a series of shallow dams. Runoff in the proposed Pit 10 area would likely be affected by the Project and impact water availability generally.

Biosecurity has been managed by Wilpinjong Coal Mine in recent years; however, the property manager has previously arranged a local shooting contractor to come onto the property several times each week. The main feral species of concern are feral pigs and wild dogs which frequently take calves. Some trapping attempts have been made in previous years, but numbers appear to remain the same. Weeds of concern include St John's Wort (*Hypericum perforatum*) and Saffron Thistle (*Carthamus lanatus*), which are managed directly by Peabody

contractors in accordance with lease constraints. Further biosecurity plans are implemented through the farm records program.



Figure 04-2 Toward the Southernmost Extent of the Gateway Application Area (-32.389786,149.952195).



Figure 04-3 Barigan and Wondoona are Separated by a Rocky Outcropping that Runs NNE-SSW Through the Property (-32.380529, 149.952285).



Figure 04-4 Paddock on the North Side of Wollar Road (-32.361463, 149.964736).



Figure 04-5 Paddock on the Eastern Side of a Rocky Outcrop that Runs NNE-SSW Through the Property (-32.368737, 149.980024).

05 AGRICULTURAL RESOURCE ANALYSIS WITHIN GATEWAY APPLICATION AREA

Agricultural resource analysis within the Gateway Application Area comprised literature and data review, site inspections, and land manager interviews.

05.1 Summary of Site Inspection and Interviews

Agricultural land uses and production systems undertaken by the lessees within and adjacent to the Gateway Application Area can be summarised as:

- Grazing cattle for beef production;
- Opportunistic fodder cropping on areas outside the Gateway Application Area; and
- Water for livestock sourced from creeks, overland flow, natural springs and bores.

As is outlined in Section 03.3.5, these activities are representative of the broader Central Tablelands region, where beef production accounts for more than 30% of the region's gross value of agricultural production (NSW DPI, 2020) The region is characterised by extensive grazing on native and improved pastures, with many holdings operating pastoral systems on native country supported by periodic fertiliser application (e.g. superphosphate) and opportunistic fodder production where seasonal conditions permit.

Lessees within the Gateway Application Area source agricultural supplies mainly from local suppliers such as:

- Nutrien Ag Solutions;
- Previously Combined Rural Traders (CRT) via Peabody management;
- CS Livestock stock and station agent; and
- Coffin Creek Angus and other local breeders.

Markets used by land managers include the local Mudgee Saleyard (Mid-western Regional Council Saleyards) and other saleyards such as Scone Regional Livestock Selling Centre, depending on expected market prices. Steers are also raised and transported for finishing at a number of feedlots in the Riverine and QLD regions including Mort & Co Feedlots and Gundamain Pastoral Co Feedlot. Manchee Agriculture's beef and genetics are sold to all states and territories in Australia, and their branded beef is exported to 29 different countries around the world.

Agricultural employment includes land manager family members and contracted property managers in addition to 3 permanent staff and seasonal/occasional contractors. A summary of the primary and other land uses is provided in Table 05-1 and Figure 05-1.

Table 05-1 Summary of Land Uses Local to the Gateway Application Area (DCCEEW, 2023).

Property Name	Whole Property Area (ha) Impacted by Project	Primary Land Use
Araluen	57.46	Grazing - Cattle
Barigan and Wandoona	558.81	Grazing - Cattle
Crown Reserves	34.15	Grazing - Cattle
Road Corridor	10.97	Not Grazed
Water Corridor	0.78	Grazing - Cattle
Freehold DP131083	4.48	Grazing - Cattle
Total	**667.07**	

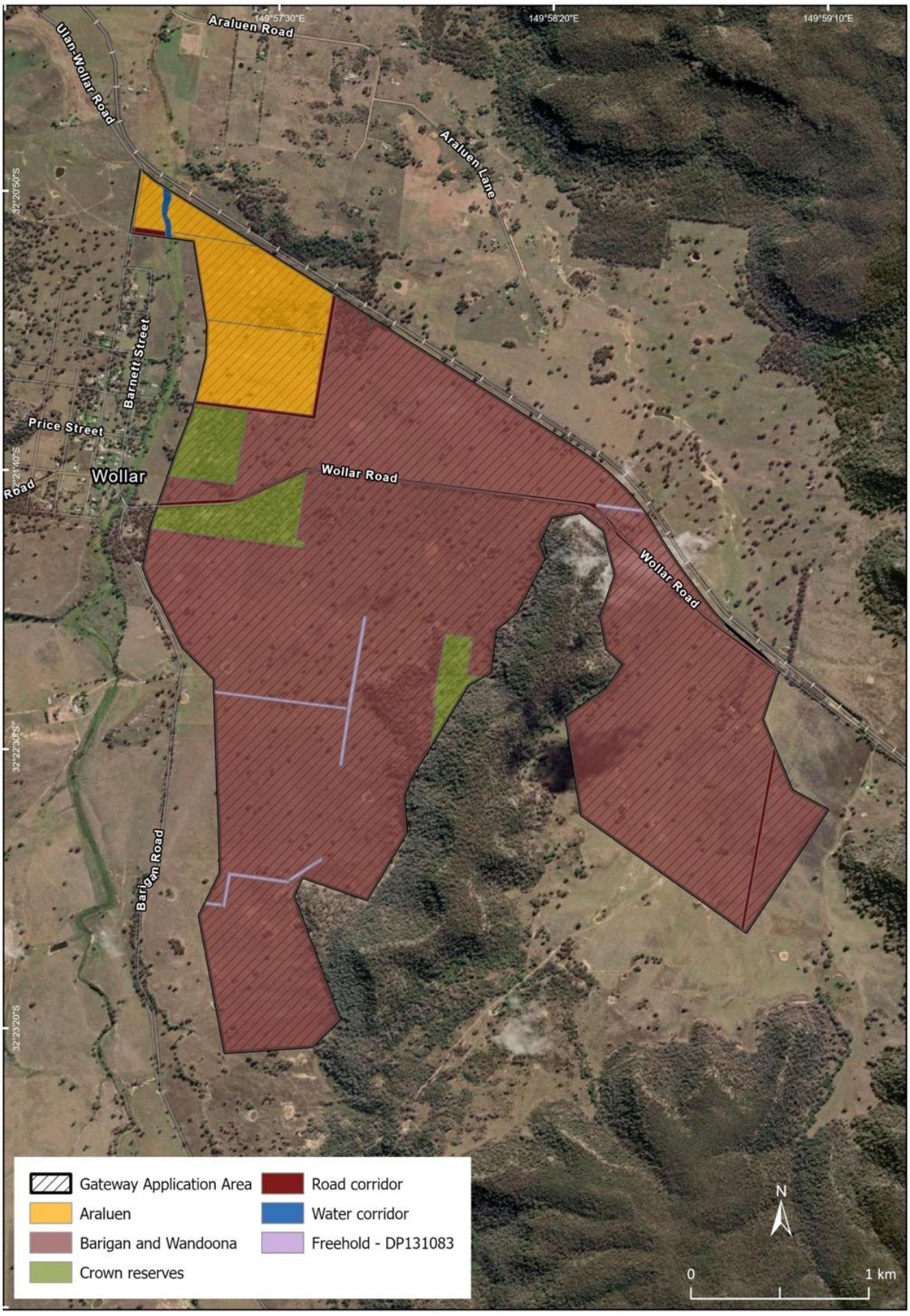


Figure 05-1 Gateway Application Area Mapped Land Classifications (DCCEEW, 2023).

05.2 Soil and Land Characteristics

05.2.1 Soil Type and Soil Fertility

The dominant soil mapping units (SMU) across the Gateway Application Area include Chromosols (SMU 1), Dermosols (SMU 2), Kandosols (SMU 3) and Sodosols (SMU 4) (Minesoils, 2026a; Appendix B) (Table 05-2; Figure 05-2). The Gateway Application Area is dominated by soils with low, moderate, and moderately low fertility (Appendix B; Table 05-3). The SMUs presented in this report are noted to be different to those presented within the BSAL Assessment (Minesoils, 2026c; Appendix D). While the SMU's between the reports are largely similar and closely related, the SMU's presented in this report are based exclusively on soil physicochemical properties to distinguish the representative types of soil within the Gateway Application Area (Appendix B[1]).

Table 05-2 Soil Units within the Gateway Application Area (Minesoils, 2026a).

Soil Mapping Units	Area (ha)
1: Chromosols	476
2: Dermosols	102
3: Kandosols	59
4: Sodosols	30
Total	**667**

Table 05-3 Inherent Soil Fertility within the Gateway Application Area (Minesoils, 2026a).

Fertility	Area (ha)
Moderately low to moderate	30
Moderate	59
Moderately high	578
Total	**667**

[1] Table 05-3 Inherent Soil Fertility within the Gateway Application Area and Appendix B Wilpinjong Coal Mine pits 9 and 10 extension: Soil Mapping Units Memorandum

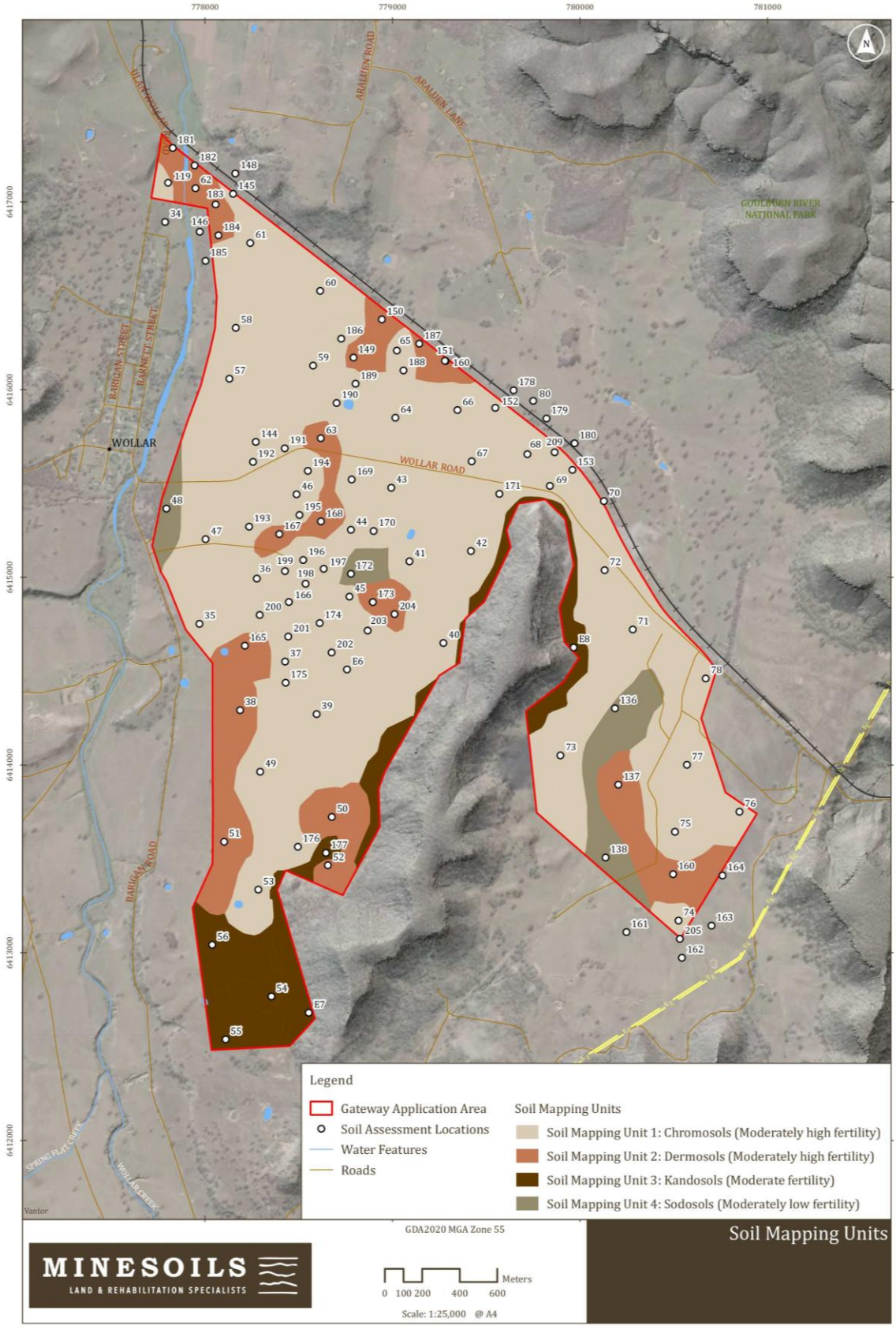


Figure 05-2 Soil Mapping Units (Minesoils, 2026a).

05.2.2 Land and Soil Capability

The Land and Soil Capability (LSC) Assessment Scheme uses the biophysical features of the land and soil including landform position, slope gradient, drainage, climate, soil type and soil characteristics to derive detailed rating tables for a range of land and soil hazards (NSW OEH, 2013). The LSC class gives an indication of the land management practices that can be applied to a parcel of land. The LSC classes are outlined in Table 05-4.

Table 05-4 Land and Soil Capability Class (NSW OEH, 2012).

LSC Class	Definition
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, nature conservation)	
1	Extremely high capability land: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
2	Very high capability land: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
3	High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation)	
4	Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
5	Moderate–low capability land: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.

LSC Class	Definition
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture)	
6	Low capability land: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
Land generally incapable of agricultural land use (selective forestry and nature conservation)	
7	Very low capability land: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
8	Extremely low capability land: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.

The LSC of the Gateway Application Area is shown in Table 05-5 and Figure 05-3 (Appendix C). The majority of the Gateway Application Area comprises moderate capability Class 4 land (212 ha) and low capability Class 6 land (212 ha). These LSC classes constrain land management options for higher-impact activities such as cropping, high-intensity grazing and horticulture. The most appropriate land uses, and those currently practiced, are grazing and nature conservation.

Other areas within the Gateway Application Area include Class 3 land (107 ha), which is classified as high capability land with moderate limitations to use, as well as Class 5 (71 ha) and Class 7 (65 ha) land. Class 5 and Class 7 land have high to very severe limitations for high-impact agricultural uses.

Table 05-5 Interim LSC Classes within the Gateway Application Area (Minesoils, 2026b).

LSC Classes	Limitations	Area (ha)
3	High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.	107
4	Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.	212
5	Moderate–low capability land: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.	71
6	Low capability land: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.	212
7	Very low capability land: Land has severe limitations that restrict most land uses and generally cannot be overcome.	65
Total		**667**

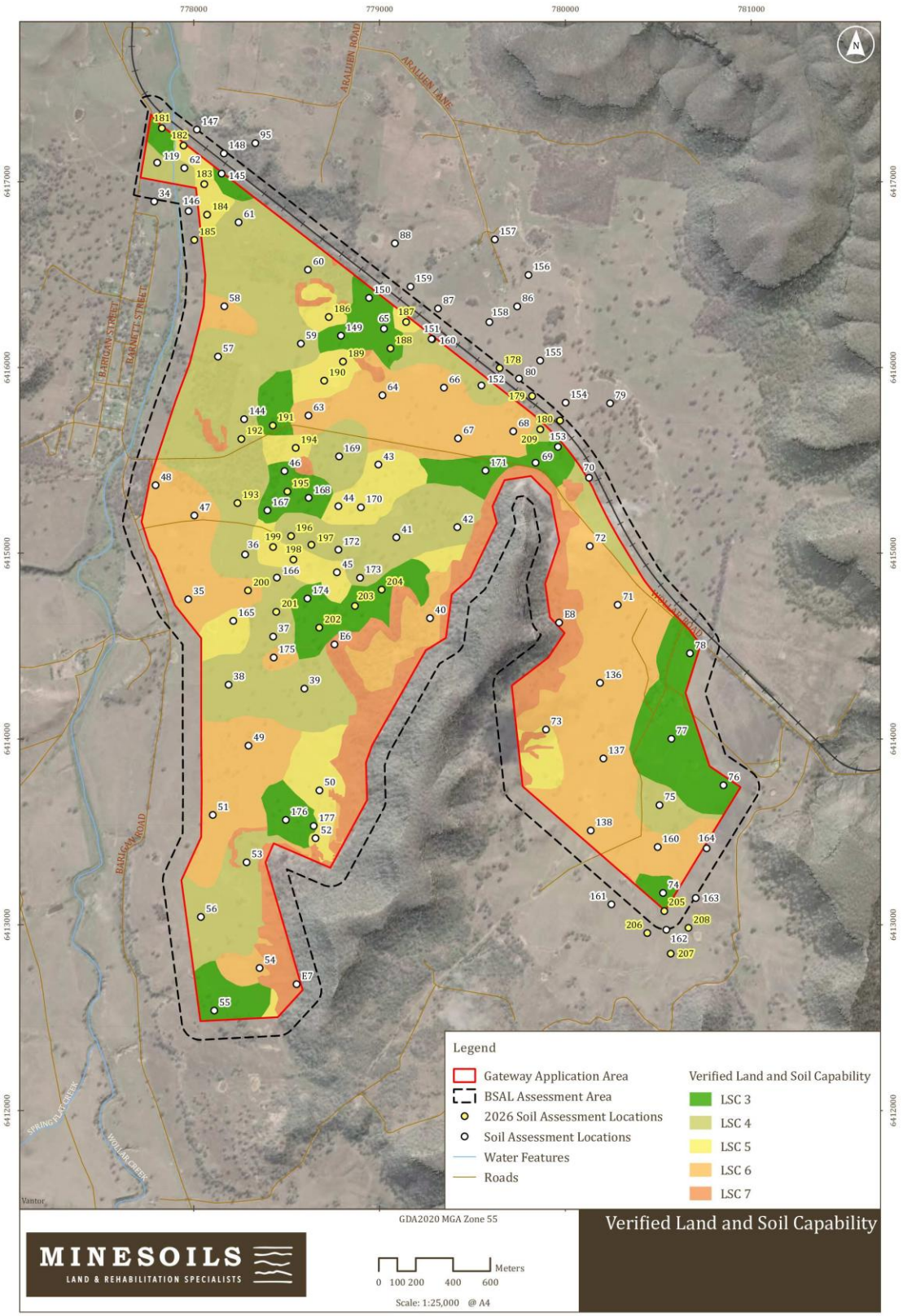


Figure 05-3 Land and Soil Capability Classes within the Gateway Application Area (Minesoils, 2026b).

05.2.3 Site Slope and Topography

The Gateway Application Area is dominated by moderately undulating lower and mid slopes to gently undulating open flats and drainage plains (0–27% slope). This becomes gently inclined toward the vegetated ridgeline on the southern boundary of the site (Table 05-6; Figure 05-4 and Figure 05-5).

Table 05-6 Slope of Gateway Application Area (Gallant et al, 2011).

Slope %	Area (ha)
0–3	558.61
4–6	53.53
7–9	28.35
10–12	12.79
13–16	9.85
17–20	3.15
21–27	0.79
Total	**667.07**

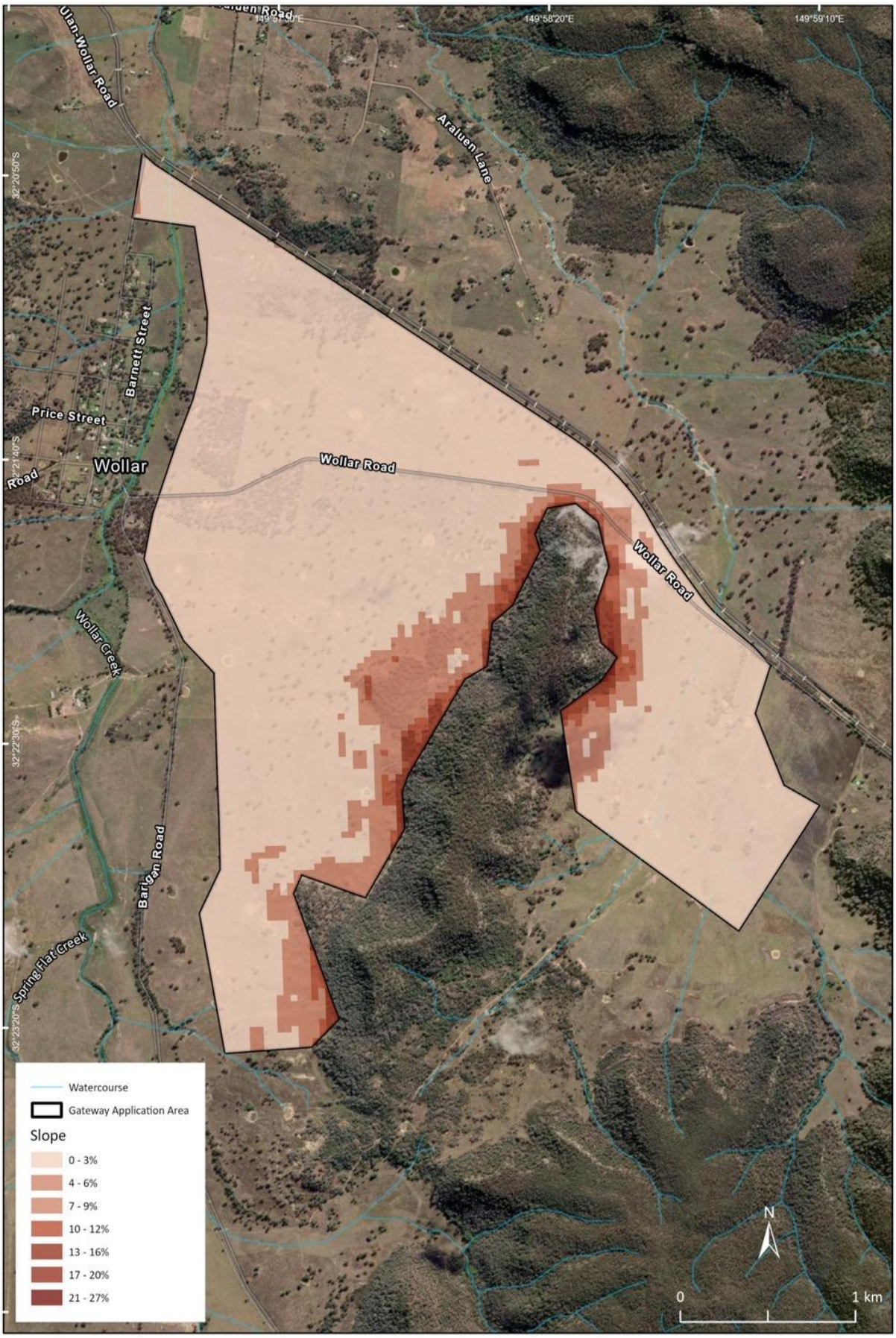


Figure 05-4 Slope of Gateway Application Area (Gallant et al, 2011).

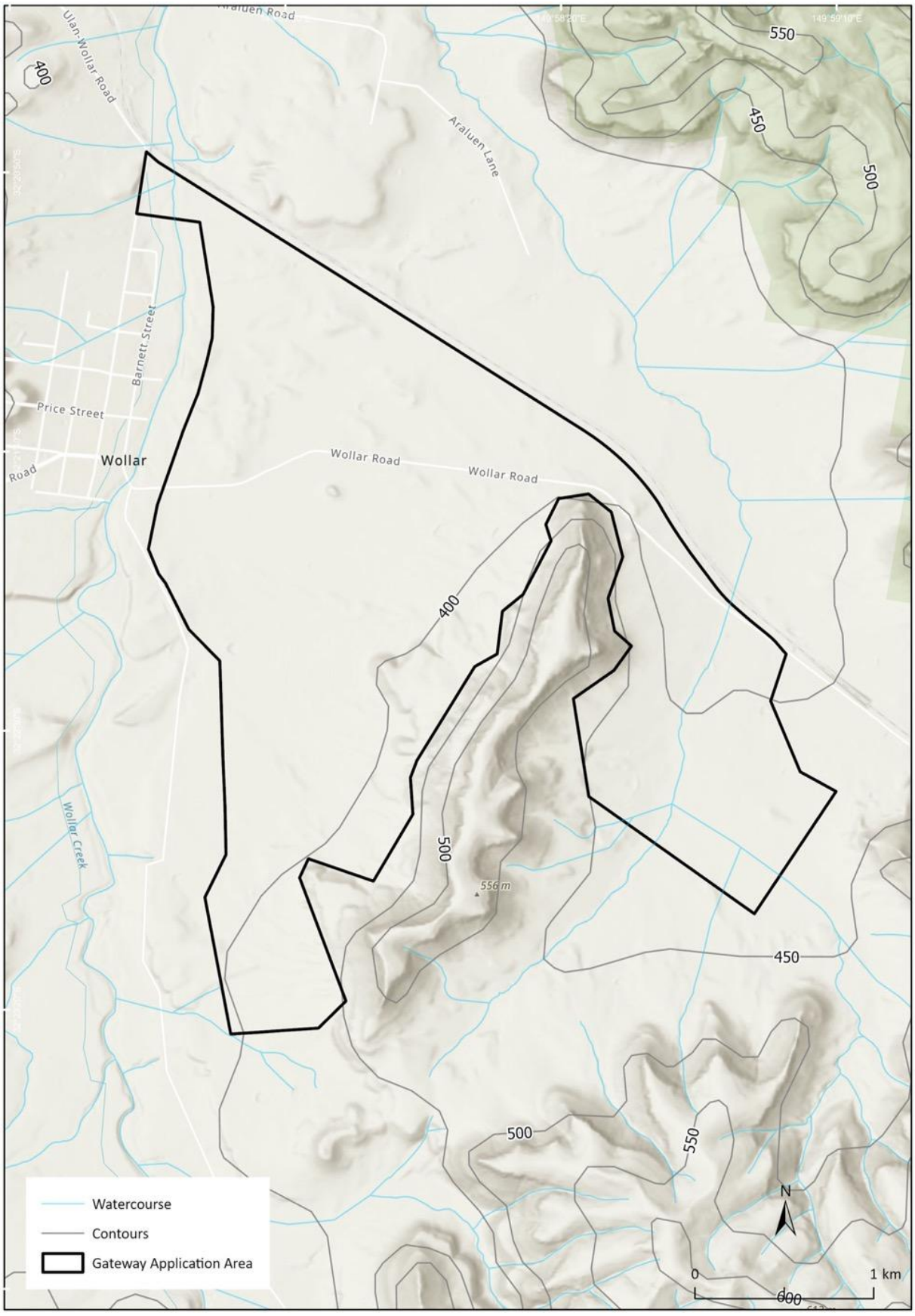


Figure 05-5 Topography within the Gateway Application Area (ESRI, 2025; Geoscience Australia, 2006).

05.2.4 Presence of Biophysical Strategic Agricultural Land

State held mapping of BSAL does not identify BSAL or CIC in the surrounds of the Gateway Application Area, however, an area of the Gateway Application Area has been identified as potential BSAL based on the Interim Protocol, warranting additional investigation for confirmation.

Minesoils (2026c) undertook a soil and BSAL investigation across the site and confirmed the potential presence of 90.30 ha of potential BSAL and confirmed non BSAL on the remaining 576.77 ha (Table 05-7; Figure 05-6).

It is noteworthy that only a small section of the potential BSAL area within the Gateway Application Area has historically supported higher-value agricultural production such as cropping. High-value agricultural production is not currently undertaken on potential BSAL land within the Gateway Application Area, with the majority of this land utilised for grazing of native and modified pastures (refer to Figure 03-4 and Figure 05-6).

Table 05-7 Presence of Verified BSAL across Gateway Application Area (Minesoils, 2026c).

BSAL	Area (ha)
Verified BSAL	90.30
Verified Non-BSAL	576.77
Total study area	**667.07**

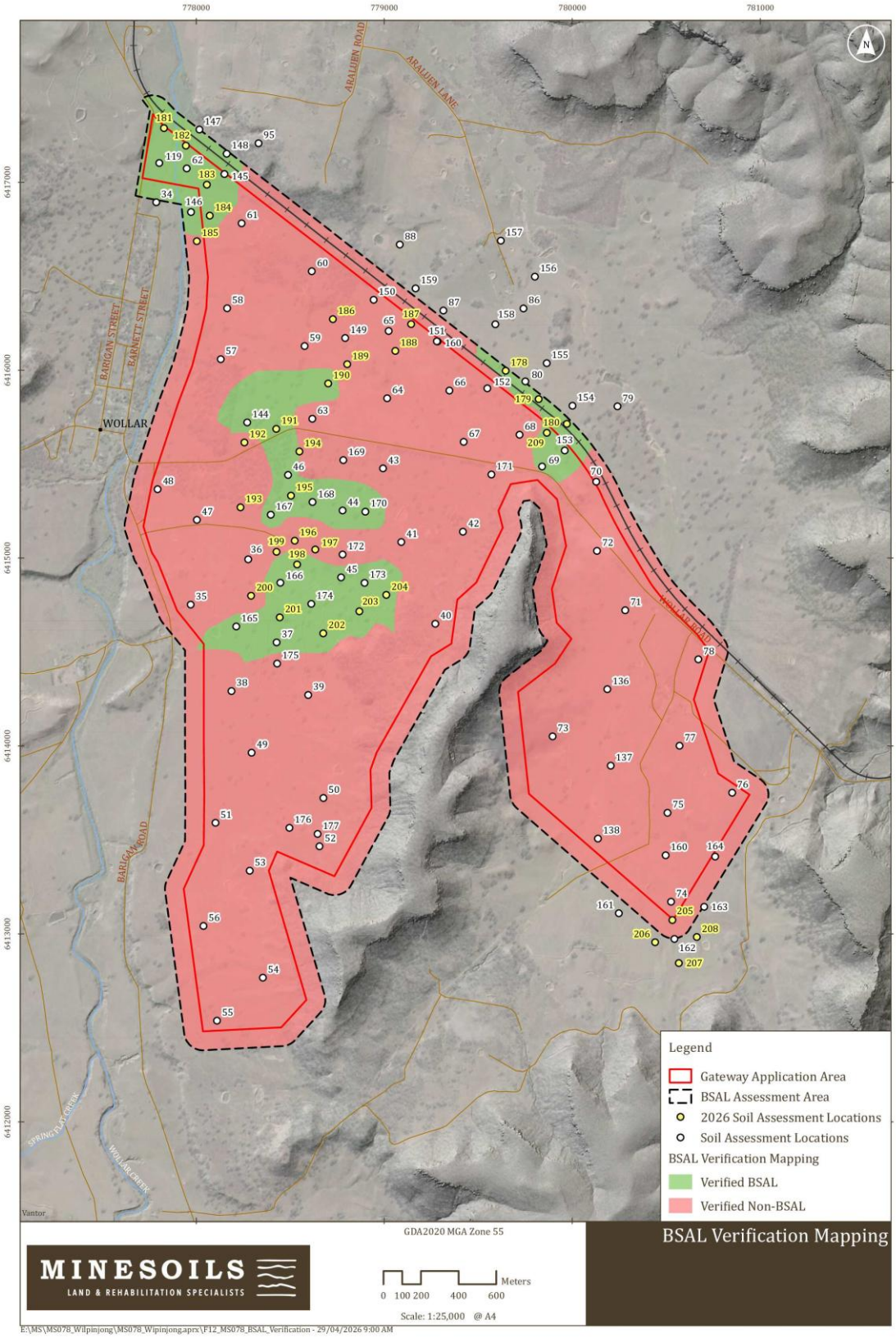


Figure 05-6 Presence of Verified BSAL across Gateway Application Area (Minesoils, 2026c).

05.3 Estimated Agricultural Productivity within the Gateway Application Area

For this assessment we have used regional averages to estimate the potential impacts on agricultural production firstly at the whole combined property scale (7,281 ha), and then for the Gateway Application Area (667.07 ha).

To provide an estimate of land carrying capacity an assumed pasture management mix of low-quality native pasture (mainly summer grass and low legume component) and native pasture with sub clover and superphosphate was used. Fodder cropping was not considered as it is not undertaken within the proposed Gateway Application Area. Based on productivity benchmarks for the NSW Southern Tablelands provided by (NSW DPI, 2022a) low-quality native pastures typically support an average carrying capacity of approximately 1 dry sheep equivalent (DSE)/ha, while improved native pastures may support around 6.5 DSE/ha under favourable conditions. Field observations and landholder interviews indicate that the Gateway Application Area comprises a combination of lower productivity native pasture and areas of native pasture that have received historical fertiliser inputs (e.g. superphosphate), resulting in moderate pasture improvement. Pasture productivity across the Gateway Application Area is variable due to differences in soils, pasture condition, topography and management history. Taking this variability and the mixed pasture condition into account, an average carrying capacity of 3.75 DSE/ha has been adopted for the site. Using this average, the total DSE possible across the combined property area (7,281 ha) equates to 27,304 DSE, or 2,502 DSE for the Gateway Application Area. This value represents a best-case long-term productivity scenario.

To confirm the adopted average carrying capacity (3.75 DSE/ha), additional analysis using a secondary method was undertaken. Indicative DSE/ha values were assigned to each LSC class to estimate the carrying capacity of each land unit and calculate the overall capacity of the Gateway Application Area. These values were based on site characteristics, landholder feedback on current pasture condition and management practices, and regional rainfall and productivity data. This approach was used to ensure the estimates reflect realistic grazing potential under the existing land use.

Based on this analysis, the Gateway Application Area is estimated to be capable of supporting approximately 2,457.5 DSE (Table 05-8). This represents a decrease in total DSE, confirming that the original average of 3.75 DSE/ha remains appropriate.

Table 05-8 Gateway Application Area Carrying Capacity (DSE/ha) per LSC Class

LSC Class	Area (ha)	DSE/ha	Carrying Capacity
3	107	6.5	695.5
4	212	5	1,060
5	71	3	213
6	212	2	424
7	65	1	65
Total	**667**		**2,457.5**

The latest beef cattle gross margin data from NSW DPIRD (NSW DPIRD, 2025) was used to estimate the gross margin per hectare (GM$/ha) under three possible production systems:

- Inland store weaners sold from self-replacing herd on semi-improved pastures a maximum gross margin of $168.28/ha.
- Purchased weaner steers and grow out to feedlot weights on improved pasture a maximum gross margin of $555.03/ha.
- Feeder steers and weaner heifers sold from self-replacing herd on semi-improved pasture a maximum gross margin of $234.76/ha.

The average annual GM$/ha across these three enterprises is $319.36/ha. Applying this to the total property area (7,281 ha), average annual total gross margin production value across the combined property area is $2,325,260.

Using the $319.36/ha gross margin value, the total current average agricultural production for the Gateway Application Area (667.07 ha) is $213,035 annually.

06 IMPACT ASSESSMENT

06.1 Nature of Proposed Mining Activities

The Project proposes open cut mining activities using conventional methods such as drilling and blasting that is consistent with the existing Wilpinjong Coal Mine. The impact to agricultural productivity would occur within the Gateway Application Area that is currently under rural licences, the entirety of which would be removed from agricultural purposes during the life of mine which is estimated to be at least 2038. All current agricultural infrastructure within this area would be removed.

While it is understood that the mining process would include progressive rehabilitation, for the purpose of this study, this assessment has been based on the conservative assumption that the Gateway Application Area would be unavailable for agricultural production until at least 2038 (including decommissioning and rehabilitation activities).

It is also noted that not all of the Gateway Application Area would be subject to direct disturbance. For example, areas in the immediate vicinity of Wollar Creek are intended only for ancillary infrastructure such as creek crossings.

The final planned landform is designed to comprise primarily of woodlands for conservation purposes, as such this development would result in permanent cessation of agriculture across the 667 ha.

06.2 Changes in Availability and Productivity of Land for Agricultural Use

The entire Gateway Application Area would be removed from its current use for agricultural production until at least 2038 for mining purposes, following which the intention is to return the area to woodland, specifically Regent honeyeater habitat, resulting in the permanent removal of agricultural practice from the land. Using regional gross margin value for the average current pasture and cattle production estimation of $319.36/ha, the average total annual agricultural loss resulting from the Project across the current Gateway Application Area is $213,035. This figure represents a generous estimation production for beef cattle productivity for the region, actual production could vary on a case by case scenario.

Comparison of this estimated production value with regional information from the Mid-Western Regional LGA, Central Western Region, and NSW (ABS, 2022) is presented in Table 06-1. It is estimated that the possible production value from the Gateway Application Area is approximately 0.55% of gross value in the Mid-Western LGA (2020/21), 0.11% of gross value

generated by the Central Tablelands Region 2021-2022 (DPI, 2022b) and 0.006% for NSW (2021/22) total gross value of cattle production (ABS, 2023).

Table 06-1 Value of Agricultural Productivity of Potential Impact Area Relative to Central Tablelands Region, Mid-Western Regional LGA and NSW Value of Agricultural Commodities.

Agricultural Productivity Value	$ for the year 2020-21	Gateway Application Area (% of Gross Value)
[1]Gross Value Total Livestock slaughtered and other disposals-Cattle and calves and other Mid-Western Regional Council 2020-2021	$38,721,373	0.55%
[2]Value of Agricultural Commodities produced in the Central Tablelands region 2020-2021	$198,405,023	0.11%
[3]Gross Value Total Livestock slaughtered and other disposals-Cattle and calves and other NSW	$3,332,701,901	0.006%

[1] ABS 2022 https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/2020-21#livestock-disposals-and-livestock-products (accessed 21 November 2025).

[2] DPI 2022b NSW Top Primary Industries 2020-21. Retrieved from https://www.dpi.nsw.gov.au/about-us/publications/pdi/2022/regional-output (accessed 10 December 2025).

[3] ABS 2023 https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/latest-release (accessed 25 November 2025).

06.3 Groundwater

A Preliminary Groundwater Impact Assessment has been prepared to support the Gateway Application (SLR, 2026).

In summary, the Preliminary Groundwater Impact Assessment (SLR, 2026) indicates:

- The Project is located within the Wollar Creek Water Source and the Sydney Basin – North Coast Groundwater Source.
- The Wollar Creek Water Source is the main highly productive groundwater source in the vicinity of the Gateway Application Area. The Project would meet the Level 1 minimal impact considerations defined under the Aquifer Interference Policy (AIP),

except for the water quality minimal impact consideration due to the proximity of Pit 9 to the state-mapped highly productive alluvium. The key conclusions include:

    - There are no known privately-owned bores within the alluvium and unconsolidated sediment aquifers that lie within the predicted extent of the Project related to cumulative groundwater level drawdown greater than 2 metres (m).
    - The predicted take from this water source, both during the Project and post-mining, is within the licence volume held for Wilpinjong Coal Mine.
    - The Project may meet Level 2 minimal impact consideration for water quality related to highly productive groundwater sources. SLR (2026) recommends further studies are completed as part of the EIS to define the top of high bank and extent of alluvium along Wollar Creek near Pit 9.

- There are 24 registered bores (from the Water NSW database) located within the 2 m cumulative drawdown in less productive aquifers, outside the mining leases for Wilpinjong Coal Mine, Ulan Coal Complex and Moolarben Coal Complex, and outside the proposed extent of the Project.
- The Wollar Public School bore located approximately 500 m west of the proposed Pit 9 is predicted to experience more than 2 m of cumulative drawdown as a result of the Project. Wollar Public School is now closed.
- The mine plan for the Project includes strategies to manage mine water in accordance with existing Wilpinjong Coal Mine operations. Where not able to be managed via passive evaporation, groundwater inflows to the open cut pits would be pumped via in-pit sumps where necessary to ensure safe operating conditions.
- The approved Groundwater Management Plan would continue to be implemented at the Wilpinjong Coal Mine, and would be reviewed and updated, where necessary, to include the Project.
- No drawdown greater than 2 m is predicted in WCPL-owned bores drawing from the Wollar Creek alluvial aquifer, which are used to support agricultural activities.

06.4 Surface Water

The Project design avoids open cut mining within the immediate vicinity of the main drainage feature i.e. Wollar Creek, which occurs near the eastern border of the Gateway Application Area, bisecting the north-east corner.

To maintain separation of disturbed area runoff from undisturbed area runoff and to allow transfer of water between contained water storages, various water pipelines, drains and dams may be constructed. This includes a pipeline to transfer water from Pit 9 to Pit 2.

A licensed discharge point from Pit 9 to Wollar Creek may also be considered to manage water.

A Surface Water Impact Assessment will be prepared to support the EIS, which will assess the potential impacts to surface water from the Project and establish appropriate mitigation and management measures.

06.5 Agricultural Impacts on Neighbouring Land

The Project involves an extension to the east of the approved mining area to gain access to additional coal resources. Conservatively, it has been assumed that the Gateway Application Area would be unavailable for agricultural production until at least 2038 (i.e. including decommissioning and rehabilitation activities). Lands immediately surrounding the Gateway Application Area are owned by Peabody and mostly leased for agricultural, specifically for beef cattle grazing purposes. Rural dwellings owned by WCPL around the Wilpinjong Coal Mine are used for workforce accommodation or leased back to former landowners where suitable.

The following subsections provide a summary of the key environmental assessment conclusions related to visual sensitivity, dust, noise and road traffic applicable to neighbouring agricultural enterprises. Due to the early stages of the Gateway Application, we have used the latest assessment and mitigation information relating to the Pit 8 Extension to assess air quality impacts for the Project. Future studies will be conducted as part of the EIS.

06.5.1 Air Quality

An Air Quality Assessment will be prepared to support the EIS, which will assess the potential impacts to sensitive environmental receivers. WCPL would continue to implement the air quality mitigation and management measures, and real-time air quality management and associated response protocols, detailed in the Air Quality Management Plan for the Wilpinjong Coal Mine (Peabody, 2025b).

The Air Quality Management Plan would be reviewed and updated, where necessary, to include the Project.

06.5.2 Noise

WCPL employs a best-practice, real-time noise monitoring system to continuously measure and assess operational noise impacts on the surrounding community. These established noise

management and monitoring practices would be extended to the Project and include the following measures:

- Multiple noise monitoring units that provide near-continuous data, enabling the activation of both proactive and reactive noise mitigation measures when required.
- Daily review of noise levels by site personnel, with regular oversight by a specialist consultant, allowing WCPL to identify trends, respond to community feedback, and effectively manage noise impacts.
- A formal noise complaint management process, under which landowners may submit a written request for additional mitigation. WCPL is required to consult with affected parties to implement reasonable, feasible, and proportionate noise mitigation measures consistent with the Voluntary Land Acquisition and Mitigation Policy. Where agreement cannot be reached within three months, either party may refer the matter to the Secretary for resolution (Peabody, 2025a).

Across the current mine site, no noise-related technical non-compliances were recorded between 2020 and 2024. During this same period, however, a total of 295 noise-related complaints were received (Peabody, 2025a). It is anticipated that these practices and performance standards would represent the minimum requirements for the proposed Project, subject to approval, and would apply throughout construction, development, and mining operations.

06.5.3 Road Transport Assessment

Wilpinjong Coal Mine operates continuously, 24 hours a day, seven days a week, and as of the first quarter of 2026 employs around 705 full-time equivalent workers. In line with its Development Consent, shift times are scheduled outside school bus hours and coordinated with neighbouring mining operations to minimise combined impacts from shift changes. Typical production working hours for the mine are 6:30 am-7:00 pm for day shift and 6:30 pm-7:00 am for night shift (Peabody, 2025c). The Project would use the existing road network, with an additional heavy vehicle haul road and bridge crossing to be constructed over Wollar Creek to connect Pits 9 and 10 to the Pit 8 Extension Area, and realignment and upgrade of Wollar Road to facilitate the construction of Pits 9 and 10.

06.6 Potential Socio-Economic Impacts

The Project would enable the recovery of approximately 45 Mt of thermal coal, allowing for the continued operation and efficiency of existing mine infrastructure and avoiding the premature decommissioning of significant capital assets. Extending the mine's life would also secure ongoing employment of the existing open cut operational workforce for an additional five years,

providing stability for workers, their families, and the communities that rely on the mine as a major employer. Beyond direct jobs, the Project would support a broad range of local and regional businesses through procurement, contracting, and service provision, generating substantial economic flow-on benefits across the Mid-Western Regional economy. Continued operations would also contribute to State revenue through increased royalty payments to the NSW Government between 2033 and 2038, supporting public services and regional investment. Collectively, these benefits reinforce the Project's role in maintaining economic resilience in the region while supporting ongoing energy supply and export markets (Peabody, 2025d).

06.7 Summary of Agricultural Impact Assessment

A summary of agricultural impacts from this current assessment across the Gateway Application Area are summarised in Table 06-2.

Table 06-2 Summary of Agricultural Impact Assessment.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
Resource			
Soil	Loss of agricultural soil.	Progressive backfilling and rehabilitation to current landform and LSC; to be detailed in updated RMP.	Removed during life of mine. Reconstructed during rehabilitation.
Verified BSAL land	Permanent loss of identified and verified BSAL lands of up to 90.30 ha across the Gateway Application Area.	No management or mitigation options available.	Permanent removal of up to 90.30 ha of verified regionally important SAL from agricultural production.
Surface Water	Capture and management of runoff from mining areas and other disturbance areas.	Mitigated through project design which avoids open cut mining within the immediate vicinity of Wollar Creek,	No significant impact.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
	Alteration of flows from Wollar Creek changing water access sources. Changed land runoff capabilities, impacting storage dam refills.	incorporates clean water diversions for other drainage lines upstream of the Project disturbance areas.	
Groundwater	No predicted impacts to private bores within the main highly productive groundwater source (i.e. the Wollar Creek Water Source) within the vicinity of the Gateway Application Area. There is a potential risk of exceeding the drawdown criterion for water supply works at one private bore i.e. the Wollar Public School bore, which accesses water from the less productive Sydney Basin North Coast Groundwater Source within the vicinity of the Gateway Application Area.	A Groundwater Management Plan would be developed for the Project, consistent with contemporary NSW development consents. The plan would include a groundwater monitoring strategy, groundwater level triggers, and a trigger action response plan to manage potential drawdown risks to existing water users. If WCPL receives notification of a reduction in groundwater level of greater than 2 m at the Wollar Public School bore, WCPL would implement contingency measures that include deepening of the affected groundwater supply, construction of	No significant impact.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
		a new groundwater supply or provision of a new alternative water supply. WCPL will consult with its lessees regarding any groundwater availability concerns over Peabody-owned land that may result from the Project.	
Weeds	Weeds decrease agricultural productivity (no significant risk anticipated with appropriate management).	Weed management procedures to minimise potential risk of weed establishment and spread. Incorporate weed management into routine property management practices.	No significant impact.
Biosecurity	Introduction or spread of agriculturally significant disease or pest (no significant risk anticipated with appropriate management).	Develop land management practices for the properties to minimise the threat of disease and pest risking property and regional biosecurity. Incorporate biosecurity management into routine property management practices. To be detailed in operations plan as part of the EIS.	No significant impact.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
Practice			
Grazing	Loss of grazing land within the Gateway Application Area until at least 2038.	No management or mitigation during life of mine. Rehabilitation of land to previous grazing productivity to be addressed in updated RMP.	Restriction of access and disturbance of land during life of mine. Rehabilitation to a final land use that is not suitable for grazing.
Fodder cropping	Fodder cropping not currently undertaken in the Gateway Application Area.	Not Applicable.	Not Applicable.
Infrastructure			
Homestead, bores fences and gates, dams, machinery and storage sheds	Removal of all infrastructure in the Gateway Application Area.	Create new infrastructure as required with the final landform and land use. Decommission and removal of all infrastructure in the Gateway Application Area unless a suitable post-mining land use is identified for the infrastructure in consultation with relevant stakeholders.	Removed, as required, during life of mine.
Neighbouring Agricultural Impacts			

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
Visual Sensitivity – amenity only, no industry in immediate vicinity is reliant on visual	Increased visual impacts on surrounding dwellings, roadsides and other receptors.	Rehabilitation of mine areas as soon as practicable following disturbance. To be further addressed in the EIS.	No significant impact.
Air quality	Dust impacts to agriculture and dwellings.	An air quality impact assessment will be prepared for the Project. The assessment will be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW Environment Protection Authority [EPA], 2022). The predicted air quality impacts will also be assessed against the relevant criteria and procedures in the *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (NSW Government, 2018). Management and/or mitigation measures will be determined from the	No significant impact.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
		air quality impact assessment and will include: • air quality monitoring at various locations that are considered representative of residential receivers; • implementation of general dust mitigation measures (e.g. haul road watering, dust suppression polymers) as part of operations to minimise potential dust emissions; and • a real-time response protocol including the implementation of additional proactive and reactive dust mitigation measures to avoid potential non-compliances. To be further addressed in the EIS.	

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
Noise	Noise impacts to local receptors due to increased traffic and mining operations in area.	A noise and blasting assessment will be prepared for the Project. The assessment will be conducted in accordance with the following guidelines: • Noise Policy for Industry (NSW EPA, 2017); • VLAMP (NSW Government, 2018); • Assessing Vibration: a technical guideline (NSW Department of Environment and Conservation, 2006);and • *Interim Construction Noise Guideline* (NSW Department of Environment and Climate Change [DECC], 2009). Management and/or mitigation measures will be determined from the noise and blasting assessment and will include:	No significant impact.

Agricultural Resource, Practice or Infrastructure	Potential Impact	Management or Mitigation	Consequence to Agricultural Productivity
		• real-time monitoring and an associated protocol for real-time management of noise emissions; and • monitoring for adverse meteorological conditions and adjusting mining operations where necessary. To be further addressed in the EIS.	
Road transport	Road impacts from continuation of mine-related traffic movements and new road infrastructure requirements.	A road transport assessment will be prepared to determine if the existing network can satisfactorily accommodate the forecast traffic demands resulting from the Project. Where relevant, management and/or mitigation measures will be implemented, including avoiding overlapping shift times. To be further addressed in the EIS.	No significant impact.

06.7.1 Considerations of Critical Mass Thresholds

The DPI defines a critical mass as 'Where a project is expected to significantly reduce the portion of agricultural enterprises within a region (that is a reduction greater than 5%) within aggregate or within a specific enterprise (such as dairy, thoroughbred breeding or apple production etc)' (NSW Department of Planning and Infrastructure, 2013).

Estimated impacts on regional agricultural productivity as a result are <1% (Table 06-1), and it follows there would be negligible outcomes for the regional agricultural industry and related services and employment. Therefore, the Project does not create a risk to critical mass thresholds for the agricultural industry in the region.

06.8 Cumulative Impact Assessment

With minimal change in agricultural production at the regional scale, the impact to agriculture due to the Project is considered to be negligible, therefore the Project would not materially contribute to potential cumulative impacts on the regional agricultural industry.

06.9 Assessment Against Gateway Criteria

This AIS has assessed the potential impacts on agricultural production within the Gateway Application Area against the relevant Gateway assessment criteria, as outlined in Table 06-3

Table 06-3 Summary of Agricultural Impact Assessment.

Criteria in Clause 2.31(4)(a) of the Resources and Energy SEPP	Impact Assessment
Any impacts on the land through surface area disturbance and subsidence	The Gateway Application Area would be used for an extension of existing open cut mining to access additional coal reserves and extend the mine life by 5 years. Over the life of the Project this would involve standard open cut mining methods, including drilling, blasting, loading, hauling and the development and use of associated plant and infrastructure. As such there is a high certainty of surface disturbance within the Gateway Application Area including loss of production and soil function risk, excluding where buffers are in place to protect water courses (Wollar Creek) and road infrastructure. Being open cut, subsidence and resulting drainage, strain and cracking are an unlikely occurrence. The impacts on surface disturbance would last for the duration of the Project up until 2038 at which point rehabilitation is expected to remediate the land. Land is to be

Criteria in Clause 2.31(4)(a) of the Resources and Energy SEPP	Impact Assessment
	remediated to woodland conservation rather than agricultural production, to a standard required for the successful establishment of native vegetation.
Any impacts on soil fertility, effective rooting depth or soil drainage	Standard open cut mining processes and development, and use of associated plant and infrastructure would involve the removal of soil material and therefore exposure of underlying bedrock, thereby reducing soil fertility and the ability for plant growth. Rehabilitation post mining should effectively mitigate the expected effects and return soils to previous fertility, rooting depth and soil drainage, however in this case rehabilitation will be required to meet standards to effectively establish native woodland.
Increases in land surface micro-relief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH	Standard open cut mining processes, together with the development and operation of associated plant and infrastructure, would involve the removal of soil material, significantly affecting landform relief, soil condition (including salinity and pH), the presence of rocky outcrops, slope and surface rockiness. Post mining rehabilitation is designed to effectively mitigate the impacts, resulting in a final landform broadly similar to existing conditions. Rehabilitation would utilise reserved topsoil and rock materials to create a heterogeneous landscape, to a standard that supports the effective establishment of native woodland.
Any impacts on highly productive groundwater (within the meaning of the AIP)	No predicted impacts to private bores within the main highly productive groundwater source (i.e. the Wollar Creek Water Source) within the vicinity of the Gateway Application Area.
Any fragmentation of agricultural land uses	The proposed open cut mine extension would result in fragmentation of agricultural land within and adjacent to the Gateway Application Area through the physical separation of land parcels and the introduction of operational infrastructure, buffers, and exclusion zones. This fragmentation may disrupt the continuity and functionality of existing agricultural land uses, limiting access, reducing paddock sizes, and constraining farm

Criteria in Clause 2.31(4)(a) of the Resources and Energy SEPP	Impact Assessment
	management practices. This may impact the operational efficiency and flexibility and potentially the longer-term agricultural productivity and viability of the current lease areas adjacent to the Gateway Application Area. The loss of land connectivity and functional integration would represent a permanent change to agricultural land use, particularly in the case of this Project where land is not proposed to be returned to agricultural production following mining.
Any reduction in the area of verified BSAL	The proposal would result in the permanent removal of up to 90.30 ha of regionally important verified BSAL from agricultural production due to surface disturbance associated with open cut mining. This represents a high-certainty impact, as the affected land would be rehabilitated to woodland for conservation purposes rather than returned to agricultural use, resulting in a permanent change in land use within the Gateway Application Area and a reduction in the regional verified BSAL resource.

07 CONCLUSION

This assessment confirms that the Gateway Application Area consists of lands predominantly of moderately low to low inherent agricultural capability due to the combined limitations of soil, topography and climate. Currently the area is used for beef cattle production. Current and historical agricultural use has required careful management to avoid land degradation, and the absence of systematic pasture improvement, combined with low levels of fertiliser application, has resulted in relatively low pasture productivity. Current weed and pest incursions further constrain the area's productive potential. While water availability from Wollar Creek and several groundwater bores has supported existing operations, concerns for any potential impacts on these sources would be appropriately managed through direct mitigations that would be detailed during the development application process.

Based on the analysis undertaken, the development of Pits 9 and 10 is estimated to result in an annual agricultural productivity loss of approximately $213,035. This loss constitutes 0.55% of production in the Mid-western Region LGA, 0.11% of the Central Tablelands LLS Region and 0.006% of NSW. These estimated losses would continue until at least 2038, and then into the future as the land is intended to be rehabilitated to native woodland for conservation outcomes. These losses are based on conservative estimates using relatively high estimates of productivity levels and removal of the land from production. It is considered that potential losses in agricultural production present a permanent yet not significant impact on productivity at the local, regional or state scales.

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APPENDIX A: LAND MANAGER CONSULTATIONS

Table A1 Land manager questionnaire with responses for Araluen property.

Question	Response
How long have you lived on or managed the property?	Family run for the last 20 years.
Describe the property history (e.g. ownership, land use, products, etc)	Used to grow wheat over 20 years ago Area split into 25-acre blocks which were sold to people in Sydney. Ended about 12 years ago when Peabody began purchased the land. Araluen is still split into these smaller blocks with maintained fences. • Property now used to graze 270 head breeding stock and progeny, Angus X Shorthorn
What is the area / or do you know what area in hectares will be removed from your farm production by the Project?	57.5 ha (from map). Predominantly one paddock “Billys Block” along Wollar Creek usually used for fattening steers. On the southern part of the block the pasture is quite scrubby towards town
Typical yield/production – what commodities does the property typically produce (and production rate)? • Crop yield • Average Dry Sheep Equivalent • Average type and number/quantity of stock and/or product sold annually	Within the Gateway Application Area only • Previous owner did some pasture improvements on “Billys Block” • Self-watering area from Wollar Creek • Paddock is used for fattening steers that are usually grazed there for around 6 months prior to sale. • Run approximately 70 steers on the block when used, otherwise the block is rested The whole property runs approximately 270 breeders in mobs of 30 head

Question	Response
• Last 10 years annual average revenue • What could it produce opportunistically in ideal seasonal conditions? What do you think the impact of this project will be on your farm's productivity? What will you no longer be able to produce?	Opportunistic (roughly every 3 years) fodder crop grown for bales on 100 acres on another part of property (lucerne, rye, fescue and arrow leaf clover or sometimes lucerne- oat mix). 3 years ago, baled 200 tonnes (t) hay. Impact of project will be water flow across the landscape which generally initiates on neighbouring property around proposed Pit 10 across the length of Araluen. Also, interception with Wollar creek from proposed Pit 9 will interrupt stock watering from this source. Property relies heavily on water sourced form groundwater boar on the northwestern side of the property (not impacted by proposed development) Fattening paddock for steers (70 per annum) and disruption to Wollar Creek likely the biggest impacts to this farms production.
What do you consider to be the main limitations of your property e.g. soil quality, water access, paddock accessibility, other?	Soil quality is low and requires regular fertilisation (Single Super Phosphate and lime) which they apply annually to a section of the property in a rolling fashion. Other limitations include rainfall and permanency of dams and Wollar Creek which stops flowing in severe drought, although a small area of permanent water hole remained during the worst of the 2019 drought. Paddocks are accessed by central road.
Where do you get your production water supply from?	Main permanent water source is one main bore on northeastern side of the property possibly a fractured rock water source is the main water source for the property • About 30-40 m deep • Sits on a drainage line Other stock water is from Wollar Creek, one deep hole that retained water during severe drought

Question	Response
	One spring bore with drinkable water- likely sourcing water directly from Wollar Creek bed Bore water pumps fills a tank of 20,000 litres (L) by solar pump in about a day which then gravity feeds to a system of troughs on the property Main source of runoff for whole of property other than Wollar Creek comes from the neighbouring lease at the southern end of Araluen where the current proposed Pit 9 sits This runoff from the south supplies 5 dams on the property Weather comes usually from the southwest, annual rainfall about 500 mm
What pasture management, pasture improvement and soil fertility management practices do you do?	Complete annual soil tests, assessing different spots each year to determine areas with which might respond best to fertilising • Soil assessment previously undertaken by the mine at one point for complete property soil assessments, but too expensive for lessee to maintain now In summer some paddocks are ploughed to maintain a fire barrier.
What groundcover management do you have in place currently? E.g. maintaining ground or pasture cover over 90% at all times or use of cell or rotational grazing practices to maintain ground cover.	Lease contract states to keep at 90%. Managed by regular self-land assessments and monitoring pasture condition and balanced with livestock requirements. Managed to maintain groundcover throughout 2019 drought period • Single super and lime applied to soil • Sow oats, turnips, brassica, arrowleaf clover (approximately 100 ha/yr) - last applied about 3 years ago and 2020 • Opportunistic planting of a lucerne, fescue, phalaris mix

Question	Response
	• Harvest about 200 t hay 3 years ago
What are your current biosecurity management practices including weed and pest animal management?	Pigs and kangaroo's greatest concern • Many come out of the Goulburn River National Park that shares boundaries with the property • LLS organises aerial shooting, get about 3,000 to 4,000 pigs each year • No shooting undertaken nearby in 2025 Liaison between the lessee and Peabody Mine occurs to manage property feral animal • Recently the Peabody contractor has moved on and resulted in reduced contact and management arrangements for control currently Generally, biosecurity is difficult to manage as many contractors have access keys onto the property • Low communication with lessee to discuss biosecurity management prior to property access Weeds • Main weed so concern include Blue heliotrope (*Heliotropium amplexicaule*), Fireweed (*Senecio madagascariensis*- noticed after drillers came through), St John's wort (*Hypericum perforatum*) and Saffron thistle (*Carthamus lanatus*) • Control is usually with spot and boom spraying and pasture sowing and management • Rocky and hard ground makes it impossible to access some areas with a weed spraying machinery

Question	Response
How many people do you employ? How many people do you need to employ to run the area that will be removed by the Project?	Family on occasion, no regular contractors used
Describe the key agricultural infrastructure on your property? E.g. machinery/feed sheds, silos, water pumps, etc	No major infrastructure within the Gateway Application Area.
What/ who are your main markets? Which saleyards/grain markets do you sell at? Who is your main Agricultural supplier?	Self-raising and some trading stock Breeding herd of about 270 head of cattle, Angus X Shorthorn cross, Angus main breeding base Nutrien Co. for agricultural advice and purchases seed, fertiliser and chemicals • Some years prior it was managed by Peabody Mine through CRT Chris Smithy stock and station agent Sell at Mudgee sale yards steers, cull heifers and aged cows Form Mudgee saleyards the cattle mostly go to feedlots including Morton Co, some in the Riverina, including Gundamain (predominant buyer) and QLD. Buy bulls from five local businesses, including Coffin Creek

Table A2 Land manager questionnaire with responses for Barigan and Wandoona properties during in-person consultation with the property manager

Question	Response
How long have you lived on or managed the property?	Lessee managing property since 2019

Question	Response
Describe the property history (e.g. ownership, land use, products, etc)	Addressed below by landholder prior to consultation with property manager.
What is the area / or do you know what area in hectares will be removed from your farm production by the Project?	558.8 ha of property on eastern side of Wollar creek and other side of rocky outcrop that runs NNE-SSW through property
Typical yield/production – what commodities does the property typically produce (and production rate)? • Crop yield • Average Dry Sheep Equivalent • Average type and number/quantity of stock and/or product sold annually • Last 10 years annual average revenue • What could it produce opportunistically in ideal seasonal conditions? What do you think the impact of this project will be on your farm's productivity? What will you no longer be able to produce?	900+ breeders Enclosed herd of custom breed of cattle: Sires are Belmont red and Santa Gertrudis cross and Belmont red Angus cross bulls Dams Santa Gertrudis cross, Shorthorn and Brahman also breeding Shorthorn X Belmont Red cross breeders for specific markets, these make up the base herds Breeding program started two years ago Weaner bull and heifer calves deems standard to breed are retained, remainder sent on consignment to feedlots in QLD and Riverina Cull for age or non-productive stock sold at Scone or other saleyards but never at local Mudgee Saleyards Gateway Application Area will remove large portion of total property on the eastern side to Barrigan Road. Main water from Wollar Creek (ephemeral) and western bores will be unaffected but runoff on property on proposed Pit 10 will impact on water availability generally. Will reduce number of stock held and is impacting lessee's confidence to undertake pasture improvement – seed and fertiliser application- at the moment

Question	Response
What do you consider to be the main limitations of your property e.g. soil quality, water access, paddock accessibility, other?	Pest animals, weeds, infrequent rainfall and potential development hindering the confidence to invest in pasture improvement.
Where do you get your production water supply from?	Water held in the soil on the western side of the escarpment Bore water under eastern most side of Gateway Application Area, on the right side of the escarpment (Taralee bore) Another bore on Mount Barrigan, gravity fed to troughs Multiple shallow dams Wollar Creek - semi-permanent creek, gradually fencing it off A second spring fed creek that is more rainfall dependent
What pasture management, pasture improvement and soil fertility management practices do you do?	100% native pastures Some oat paddocks on the western side of the property (outside Gateway Application Area) sown to feed up keeper heifers and steers prior to being sent to feedlots Fertiliser used on oat sown paddocks
What groundcover management do you have in place currently? E.g. maintaining ground or pasture cover over 90% at all times or use of cell or rotational grazing practices to maintain ground cover.	Groundcover assessed based on pasture condition and herd needs at the time so reliant on seasons and stage of production for each herd. Rotational grazing, with all paddocks getting a regular rest Looking to apply some super fertilisers after new lease contract agreed upon

Question	Response
What are your current biosecurity management practices including weed and pest animal management?	Managed by Peabody mine completely in recent years Previously a local shooting contractor would come onto the property 2-3x per week Pigs and wilds dogs are the main issues Wild dogs regularly take calves Some trapping attempts made in previous years but numbers appear to remain the same Weeds include St John's Wort (*Hypericum perforatum*) and Saffron Thistle (*Carthamus lanatus*) Weed management directed by Peabody Mine contractors based on lease constraints
How many people do you employ? How many people do you need to employ to run the area that will be removed by the Project?	Addressed below by landholder prior to consultation with property manager.
Describe the key agricultural infrastructure on your property? E.g. machinery/feed sheds, silos, water pumps, etc	Wandoona property infrastructure may or may not be impacted by placement of Pit 9 and 10. All infrastructure on Tralee will be impacted, this includes Tralee homestead, water pumps and silos. Further addressed below by landholder prior to consultation with property manager.
What/ who are your main markets? Which saleyards/grain markets do you sell at? Who is your main Agricultural supplier?	Old cows sold in Scone or somewhere else if there is a higher market price No stock sold in Mudgee Saleyards Use local vendors for supplies as much as possible • Mudgee Produce Plus • Local trucking company if no Manchee Ag owned trucks available • Nutrien Co

Question	Response
	About 300 bulls sold each year for around $6,000 to $10,000/ head 10-20% cull stock sold each year, percentage dependent of season

Below are the landholder's questionnaire responses, provided in writing in addition to the discussion notes above from the meeting with the property manager.

1. How long have you lived or managed the property?

The property manager has overseen Wandoona for 6 years, since 2019.

2. Describe the property history.

Wandoona has always been an intensive Cow/Calf breeding property, with its high and reliable rainfall. Progeny are weaned and then finished on other properties for market.

3. Typical yield/production.

Manchee Agriculture is a cow/calf beef breeding operation using sustainable, environmentally friendly management techniques. DSE and stock numbers are determined by the feed budgeting and the season. Typical stock numbers run between 400 to 900 head.

We first started testing for methane reductions in 1998, collecting data for feed efficiency and implementing those genetics through our breeding program.

The property "Wandoona" is run using Sustainable grazing techniques, studied by "Peter Andrews". We use rotational grazing to increase carbon sequestration, weekly feed and ground cover budgets are conducted to maintain 90% ground cover at all times. This minimises soil erosion and soil loss from the wind and increases photosensitisation creating soil carbon sequestration. The land use is primarily natural grazing, hormone free beef and genetic production.

Manchee Agriculture's beef and genetics are sold to all states and territories in Australia, and our branded beef is exported to 29 different countries around the world.

4. What do you think the impact of this project will be on your farm's productivity?

Apart from the loss of land for production and some increase in noise and dust, there will be very little loss of farm productivity.

5. What do you consider to be the main limitations of your property?

Paddock accessibility, it is imperative that gates are closed by mining contractors, so livestock do not get boxed together. With a world-renowned genetics business, it is our reputation on the line to deliver the correct DNA to our clients.

Water access and availability is of vital importance for livestock; this is constantly monitored by management.

6. Water supply is from both bores and dams.

7. Pasture Management.

Soil improvement is conducted through pasture groundcover over 90% at all times, this creates photosynthesis and carbon sequestration.

We use rotational grazing techniques such as those adopted by “Peter Andrews” to maintain groundcover with weekly feed budgets conducted and cattle stocking rates accessed.

8. What are your current biosecurity management practices.

Our current biosecurity plan is conducted through our farm records program, “Agri Webb”.

With regards to weed and pest management we would like to work more closely with the Wilpinjong team to help with St John’s wort and feral animal control.

9. How many people are employed?

We have 3 employees.

10. Describe the key agricultural infrastructure on your property.

- Homestead – Wandoona (Tralee)
- Workshop – Wandoona
- Haysheds – Wandoona, Barigan
- Cattle yards – Wandoona, Barigan, Spring Creek
- Horse stables – Wandoona
- Water pumps – Tralee, Barigan, Wandoona
- Silo’s – Wandoona, Tralee

11. What are our main markets?

With our Joint Ventur with Signature Beef we sell branded boxed beef to 29 countries around the world, mainly USA, UK, Korea and Japan.

Our Manchee Agriculture genetics are sold right across Australia with our bulls joining approximately 120,000 head of females a year for our clients.

APPENDIX B: WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT: SOIL MAPPING UNITS MEMORANDUM (MINESOILS, 2026A)

MINESOILS
LAND & REHABILITATION SPECIALISTS

18th April 2026

Approvals Manager
Wilpinjong Coal Pty Ltd
c/o – Resource Strategies Pty Ltd

Attention: Jon Degotardi

Dear Jon,

WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT: SOIL MAPPING UNITS

Overview

Minesoils was engaged by Wilpinjong Coal Pty Ltd to complete soil unit mapping to inform an agricultural assessment in support of an application for a Gateway Certificate (Gateway Application) for the potential extension of mining activities at the Wilpinjong Coal Mine, which would be located within the Gateway Application Area (i.e. the land on which a mining lease is required to be issued to enable the development to be carried out).

The Gateway Application Area subject to this assessment covers 667 hectares (ha) within additional areas of Exploration Licence 9399 and is shown on **Figure 1**.

The objective of this report is to provide a description of the soil mapping units (SMUs) located within the Gateway Application Area, including a review of their physicochemical properties, in accordance with the *Australian Soil and Land Survey Field Handbook* (National Committee on Soils and Terrain [NCST], 2024) and the *Australian Soil Classification (ASC) Third Edition* (Isbell, 2021).

Soil Mapping Units

SMUs are a systematic way to classify and map soils based on their physical and chemical properties. They represent areas dominated by one or more major kinds of soil or miscellaneous areas, allowing for a standardised framework for soil classification. This classification can be used for various applications, including determining suitable agriculture land use and agricultural potential, environmental risk and management, and land rehabilitation planning.

The SMUs presented in this report are noted to be different to those presented within the biophysical strategic agricultural land (BSAL) Assessment. While the SMUs between the reports are largely similar and closely related, the SMUs presented in this report are based exclusively on soil physicochemical properties to distinguish the representative types of soil within the Gateway Application Area. This mapping is unimpeded by the requirements of the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (Interim Protocol) (Office of Environment & Heritage and Department of Primary Industries - Office of Agricultural Sustainability and Food Security, 2013), which has informed the SMU mapping in the BSAL Assessment, and which requires soil units to be distinguished in the context of a physical and chemical criteria, in addition to the overarching soil type characteristics.

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For example, the Interim Protocol is designed to establish BSAL and non-BSAL SMUs. However, in reality, SMUs often will have a variety of physicochemically similar soils that do or do not meet the BSAL criteria (for instance, a unit consisting of near identical soils with a depth around 0.75 metres (m) may have a portion of soils profiles which do not meet the soil depth requirement (i.e. 0.75 m), and a portion which do meet the criteria; where the BSAL assessment would require two separate mapping units to be distinguished, in all practicality, and for the purpose of the mapping presented in this report, this would be one mapping unit.

Methodology

Minesoils undertook a soil and land resource survey of the Gateway Application Area to inform the SMU classification. The objective of the Minesoils fieldwork program was to satisfy the field assessment, sampling and testing requirements related to soil assessment and the identification of soil units, as well as soil qualities, fertility and risks including erosion, acid sulfate soils risk and salinity.

This was undertaken at a high survey intensity (approximately 1:10,000) and included collection of landform pattern and element information, soil profile data, and taxonomic parameters to distinguish soil types according to the ASC criteria, within the Gateway Application Area.

The field program was designed as an integrated free survey. An integrated survey assumes that many land characteristics are interdependent and tend to occur in correlated sets (NSCT, 2009). Survey points are irregularly located according to the survey teams' judgement to enable the delineation of soil boundaries. Soil boundaries can be abrupt or gradual, and catena and toposequences are used to aid the description of gradual variation. Soil pits were excavated by an excavator to a depth of approximately 0.8 m – 1.2 m.

The survey area targeted the full 667 ha of the Gateway Application Area. A total of 109 relevant sites were assessed, within or adjacent to the Gateway Application Area, resulting in a survey intensity of one site per approximately 6 ha (discounting those sites outside of the Gateway Application Area). Soil profiles within the Gateway Application Area were assessed in accordance with the *Australian Soil and Land Survey Field Handbook* (NCST, 2024). Detailed soil profile descriptions were recorded covering the major parameters specified in **Table 1**. Soil profile logging was undertaken in the field using Minesoils' soil data sheets, including Global Positioning System recordings and photographs of the landforms and soil profiles. Soils were keyed out in accordance with the *ASC Third Edition* (Isbell, 2021) and described in accordance with *Soils: their properties and management* (Murphy *et al.*, 2007).

Soil samples were collected at each of the assessment site's soil horizons and subject to laboratory testing. The laboratory testing suite for these sites is detailed in **Table 2**. Data was interpreted using *Interpreting Soil Test Results – What do all the numbers mean?* (Hazelton and Murphy, 2016).

Table 1: Detailed Soil Profile Description Parameters

Detailed Field Assessment Parameters	
Horizon depth including distinctiveness and shape	Pan presence and form
Field texture grade	Permeability and drainage
Field colour (Munsell colour chart)	Field pH
Pedality structure, grade and consistence	Field moisture
Soil fabric and stickiness	Surface condition
Stones (abundance and size)	Landform pattern / element
Mottles (amount, size and distinctiveness)	Current land use and previous disturbance
Segregations (abundance, nature, form and size)	Vegetation

Table 2: Soil Sample Laboratory Analysis

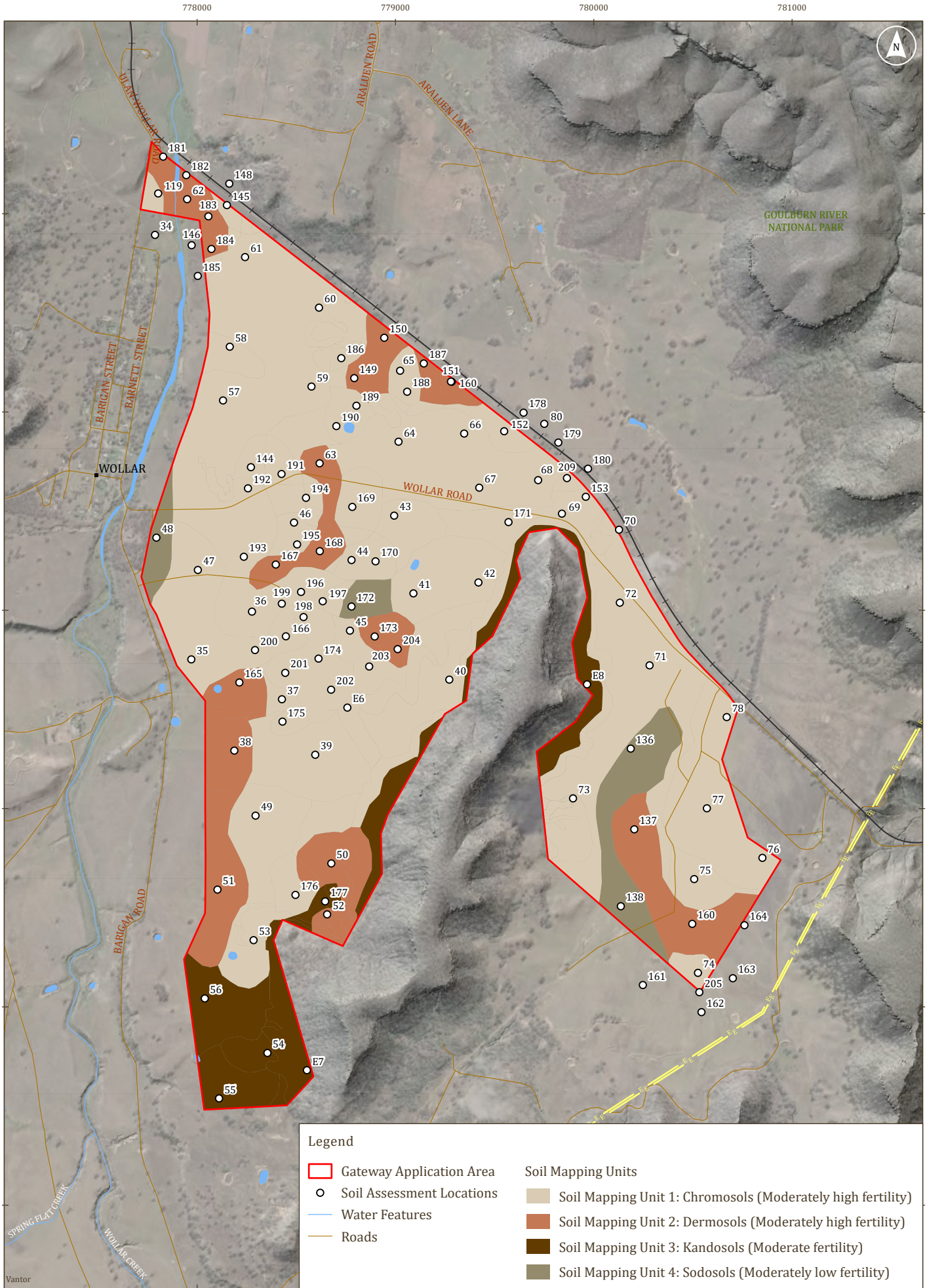
Lab Analysis	
Analyte	**Methodology**
pH (1:5 water and calcium chloride)	Rayment and Lyons (2011) – 4A1
Electrical Conductivity and Chloride	Rayment and Lyons (2011) – 3A1
Cation Exchange Capacity, Exchangeable Sodium Percentage and Calcium to Magnesium Ratio	Rayment and Lyons (2011) – 15J1
Particle Size Analysis (Selected samples only)	International Soil Science Society Hydrometer plus 0.2 and 2.0 millimetre Sieving (NCST, 2009)

Results

Four SMUs were identified within the Gateway Application Area. The distribution of these units is illustrated on **Figure 1**.

The SMUs which occur within the Gateway Application Area consist of the following:

- SMU 1: Chromosols – covering 476 ha;
- SMU 2: Dermosols – covering 102 ha;
- SMU 3: Kandosols – covering 59 ha; and
- SMU 4: Sodosols – covering 30 ha.


778000
779000
780000
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6417000
6416000
6415000
6414000
6413000
6412000
N
ARALUEN ROAD
ARALUEN LANE
GOULBURN RIVER NATIONAL PARK
WOLLAR
WOLLAR ROAD
BARIGAN STREET
BARNETT STREET
BARIGAN ROAD
SPRING FLAT CREEK
WOLLAR CREEK
Vantor
Legend
Gateway Application Area
Soil Assessment Locations
Water Features
Roads
Soil Mapping Units
Soil Mapping Unit 1: Chromosols (Moderately high fertility)
Soil Mapping Unit 2: Dermosols (Moderately high fertility)
Soil Mapping Unit 3: Kandosols (Moderate fertility)
Soil Mapping Unit 4: Sodosols (Moderately low fertility)
GDA2020 MGA Zone 55
0 100 200 400 600
Meters
Scale: 1:25,000 @ A4
MINESOILS
LAND & REHABILITATION SPECIALISTS
Soil Mapping Units
FIGURE 1

Soil Mapping Unit 1

SMU 1 is characterised by Chromosols, which are defined as soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is less than 0.2 m thick) is not sodic and not strongly acid. Soils with strongly subplastic upper B2t horizons are also included even if they are sodic. The soils of this order are among the most widespread soils used for agriculture in Australia, particularly those with red subsoils.

This SMU generally consists of loam, silty loam, clay loam and loamy sand A horizons with varied structure overlying clay loam and clay subsoils with moderate to strong structure. These soils have a wide range in pH, however, are generally acidic trending to alkaline at depth, are largely non-saline (minor presence of slightly saline or moderately saline horizons at depth) and occasionally sodic at depth. This unit contains sporadic bleached A2 horizons and distinct mottling in the B horizon. Drainage ranges from well drained to poorly drained, with most profiles moderately well or imperfectly drained, and depth ranges from shallow to deep. This SMU has a moderately high fertility.

Eutrophic Red Chromosols are the dominant soil type at the great group level within this unit, while Eutrophic Brown Chromosols are also common. Sub-dominant soil types at the order level include the very minor presence of the closely related Kurosols, which are soils in which the major part of the upper 0.2 m of the B horizon (or the major part of the entire B2t horizon if it is less than 0.2 m thick) is strongly acid.

SMU 1 is the most spatially extensive mapping unit and occupies the mid to lower slopes that characterise the majority of the Gateway Application Area.

Soil Mapping Unit 2

SMU 2 is characterised by Dermosols, which are soils which:

1. Have B2 horizons that have grade of pedality greater than weak throughout the major part of the horizon; and
2. Do not have clear or abrupt textural B horizon.

Although there is some diversity within the order, this soil order brings together a range of soils with some important properties in common.

This SMU is similar to SMU 1, albeit with a lack of texture contrast between the A and B horizons, and generally consists of loam, silty loam, loamy sand and clay loam A horizons with moderate structure overlying clay loam and clay subsoils with moderate to strong structure. These soils display a wide range in pH characteristics, in both the topsoil and subsoil, ranging from moderately acidic to strongly alkaline, are largely non-saline with minor exceptions, and are largely non-sodic, also with minor exception of sodic subsoils. Drainage is generally moderate or imperfect with some poor drainage, and profile depth ranges from shallow to deep. This SMU has a moderately high fertility.

Eutrophic Red and Brown Dermosols are the dominant soil types at the great group level within this unit. Sub-dominant soil types at the order level include the very minor presence of Chromosols.

SMU 2 occupies sporadic areas within the Gateway Application Area in association with SMU 1.

Soil Mapping Unit 3

SMU 3 is characterised by Kandosols, which are defined as soils which have all of the following:

1. B2 horizons in which the major part has a grade of pedality that is massive or weak.
2. A maximum clay content in some part of the B2 horizon which exceeds 15 percent (i.e. heavy sandy loam [SL+] or heavier).
3. Do not have a clear or abrupt textural B horizon.
4. Are not calcareous throughout the solum, or below the A1 or Ap horizon or to a depth of 0.2 m if the A1 horizon is only weakly developed.

This soil unit generally consists of loam, silty loam and loamy sand A horizons with moderate structure overlying loam, silty loam and light clay subsoils with weak structure. These soils are generally slightly to strongly acidic trending to moderately acidic or alkaline at depth, and are consistently non-saline and non-sodic. Drainage is generally moderately well to well drained, and depth is generally deep. This SMU has a moderate fertility.

Due to the range in colours for the representative detailed sites, there is an approximately even distribution within this unit of Eutrophic Red, Yellow, Grey and Brown Kandosols.

SMU 3 occupies sections of mid to upper valley slopes and more elevated terrain primarily within the southernmost zone of the Gateway Application Area.

Soil Mapping Unit 4

SMU 4 is characterised by Sodosols, which are defined as soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is less than 0.2 m thick) is sodic and not strongly acid. Therefore, this unit is physiochemically similar to SMU 1, albeit with sodic upper B horizon. This sodicity impedes fertility.

This soil unit generally consists of loam and loamy sand A horizons with a range in structure from weak to strong, overlying clay subsoils with moderate to strong structure via a clear or abrupt horizon boundary. These soils are generally acidic trending to alkaline at depth, ranging from strongly acidic to strongly alkaline, are largely non-saline in the topsoils trending to slightly or moderately saline at depth, and consistently contain a bleached A2 and distinct mottling in the B horizon. Drainage is generally poor or imperfect, and soil profiles are deep. This SMU has a moderate to moderately low fertility.

Subnatric Yellow Sodosols are the dominant soil type at the great group level within this unit, while Red and Grey Sodosols also occur.

SMU 4 is the most spatially limited unit and occupies limited mid to lower sloped areas in south-east, central and far western zones of the BSAL Assessment Area.

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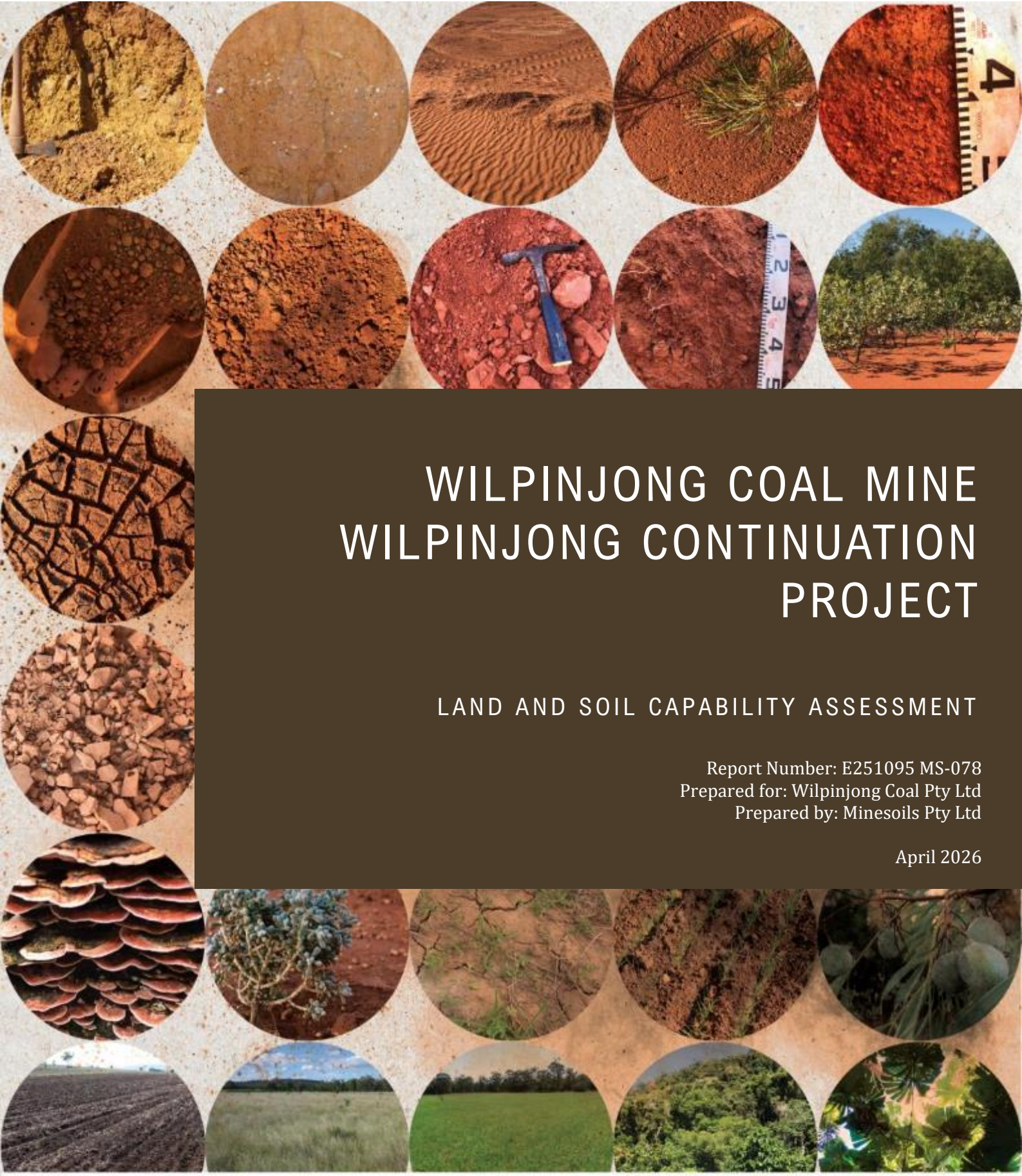
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APPENDIX C: WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT: LAND AND SOIL CAPABILITY ASSESSMENT (MINESOILS, 2026B)



WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT

LAND AND SOIL CAPABILITY ASSESSMENT

Report Number: E251095 MS-078
Prepared for: Wilpinjong Coal Pty Ltd
Prepared by: Minesoils Pty Ltd

April 2026

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1. OVERVIEW

Minesoils was engaged by Wilpinjong Coal Pty Ltd (WCPL) to undertake a Land and Soil Capability (LSC) assessment to inform an agricultural assessment in support of an application for a Gateway Certificate (Gateway Application) for the potential extension of mining activities at the Wilpinjong Coal Mine, which would be located within the Gateway Application Area (i.e. the land on which a mining lease is required to be issued to enable the development to be carried out).

The Gateway Application Area, subject to this assessment, covers 667 hectares (ha) within additional areas of Exploration Licence 9399.

The objective of this report is to provide a description of the verified LSC classification within the Gateway Application Area using *The Land and Soil Capability Assessment Scheme: Second Approximation* (Office of Environment and Heritage [OEH], 2012); herein referred to as the LSC Scheme.

2. LAND AND SOIL CAPABILITY

Land capability, as detailed in the LSC Scheme, is the inherent physical capacity of the land to sustain a range of land uses and management practices in the long-term without degradation to soil, land, air and water resources. Failure to manage land in accordance with its capability risks degradation of resources both on- and off-site, leading to a decline in natural ecosystem values, agricultural productivity, and infrastructure functionality.

The Scheme uses the biophysical features of the land and soil to derive detailed rating tables for a range of land and soil hazards. The LSC Scheme consists of eight classes, which classify the land based on the severity of long-term limitations. The LSC classes are described in **Table 1** and their definitions have been based on two considerations:

- The biophysical features of the land to derive the LSC classes associated with various hazards.
- The management of the hazards including the level of inputs, expertise and investment required to manage the land sustainably.

The biophysical features of the land that are associated with various hazards are broadly soil, climate and landform, specifically noted as slope, landform position, acidity, salinity, drainage, rockiness and climate. The eight hazards associated with these biophysical features that are assessed by the LSC Scheme are:

1. Water erosion.
2. Wind erosion.
3. Soil structure decline.
4. Soil acidification.
5. Salinity.
6. Water logging.
7. Shallow soils and rockiness.
8. Mass movement.

Each hazard is assessed against set criteria tables, as described in the LSC Scheme, with each hazard ranked from 1 through to 8 with the overall ranking of the land determined by its most significant limitation.

Table 1: Land and Soil Capability Classification

Class	Land and Soil Capability
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, nature conservation)	
1	**Extremely high capability land**: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
2	**Very high capability land**: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
3	**High capability land**: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation)	
4	**Moderate capability land**: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
5	**Moderate–low capability land**: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture)	
6	**Low capability land**: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
Land generally incapable of agricultural land use (selective forestry and nature conservation)	
7	**Very low capability land**: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
8	**Extremely low capability land**: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.

3. METHODOLOGY

Minesoils undertook a soil and land resource survey of the Gateway Application Area to inform this LSC assessment. The objective of the Minesoils fieldwork program is to satisfy the field assessment, sampling and testing requirements related to LSC and Biophysical Strategic Agricultural Land assessments. The fieldwork plan outlined below was designed to satisfy the requirements of LSC assessment soil survey and mapping: This was undertaken at a 1:10,000 survey intensity (1 site every 10 ha), and required collection of landform pattern and element information, soil profile data, and taxonomic parameters to distinguish soil types according to the Australian Soil Classification (ASC) criteria, within the Study Area.

The field program was designed as an integrated free survey. An integrated survey assumes that many land characteristics are interdependent and tend to occur in correlated sets (National Committee on Soil and Terrain [NCST], 2009). Survey points are irregularly located according to the survey teams' judgement to enable the delineation of soil boundaries. Soil boundaries can be abrupt or gradual, and catena and toposequences are used to aid the description of gradual variation. Soil pits were excavated by an excavator to a depth of approximately 0.8 metres (m) – 1.2 m.

The survey area targeted the full 667 ha of the Gateway Application Area. A total of 124 relevant sites were assessed, within or adjacent to the Gateway Application Area, resulting in a survey intensity of one site per approximately 6 ha (discounting those sites outside of the Gateway Application Area). Soil profiles within the Gateway Application Area were assessed in accordance with the *Australian Soil and Land Survey Field Handbook* (NCST, 2024). Detailed soil profile descriptions were recorded covering the major parameters specified in **Table 2**. Soil profile logging was undertaken in the field using Minesoils' soil data sheets, including Global Positioning System recordings and photographs of the landforms and soil profiles. Soils were keyed out in accordance with *The Australian Soil Classification Third Edition* (Isbell, 2021). Soil profile descriptions are included in **Appendix 1**.

Soil samples were collected at each of the assessment site's soil horizons and subject to laboratory testing. The laboratory testing suite for these sites is detailed in **Table 3**. Laboratory results are presented in **Appendix 2**.

Table 2: Detailed Soil Profile Description Parameters

Detailed Field Assessment Parameters	
Horizon depth including distinctiveness and shape	Pan presence and form
Field texture grade	Permeability and drainage
Field colour (Munsell colour chart)	Field pH
Pedality structure, grade and consistence	Field moisture
Soil fabric and stickiness	Surface condition
Stones (abundance and size)	Landform pattern/element
Mottles (amount, size and distinctiveness)	Current land use and previous disturbance
Segregations (abundance, nature, form and size)	Vegetation

Table 3: Soil Sample Laboratory Analysis

Lab Analysis	
Analyte	**Methodology**
pH (1:5 water and calcium chloride)	Rayment and Lyons (2011) – 4A1
Electrical Conductivity (EC) and Chloride	Rayment and Lyons (2011) – 3A1
Cation Exchange Capacity, Exchangeable Sodium Percentage, and Calcium to Magnesium Ratio	Rayment and Lyons (2011) – 15J1
Particle Size Analysis (Selected samples only)	International Soil Science Society Hydrometer plus 0.2 and 2.0 millimetre (mm) Sieving (NCST, 2009)

4. LSC ASSESSMENT

4.1. HAZARD 1: WATER EROSION

The Gateway Application Area lies within the Eastern and Central New South Wales (NSW) Division, and the appropriate criteria for this division were used in the assessment. Assessment of water erosion hazard is almost solely dependent on the slope percentage of the land, based on each soil landscape unit. The only exception is land which falls within the slope range of 10-20%, which may be designated LSC Class 4 or 5 depending on the presence of gully erosion and/or sodic/dispersible soils.

Slopes were assessed using light detection and ranging slope analysis technology with field confirmation using an inclinometer and are designated to their respective LSC slope class accordingly.

The LSC of each site for the water erosion limitation is shown in **Table 4**.

Table 4: LSC for Water Erosion Limitation

Site	Slope (%)	Slope Class (%)	Sodicity (for 10% to <20% slope class)	LSC Class
B34	2	1 to <3	N/A	2
B35	4	3 to <10	N/A	3
B36	2	1 to <3	N/A	2
B37	3	3 to <10	N/A	3
B38	1	1 to <3	N/A	2
B39	4	3 to <10	N/A	3
B40	8	3 to <10	N/A	3
B41	3	3 to <10	N/A	3
B42	5	3 to <10	N/A	3
B43	6	3 to <10	N/A	3
B44	2	1 to <3	N/A	2
B45	3	3 to <10	N/A	3
B46	1	1 to <3	N/A	2
B47	2	1 to <3	N/A	2
B48	2	1 to <3	N/A	2
B49	4	3 to <10	N/A	3
B50	7	3 to <10	N/A	3
B51	4	3 to <10	N/A	3
B52	8	3 to <10	N/A	3
B53	6	3 to <10	N/A	3
B54	9	3 to <10	N/A	3
B55	6	3 to <10	N/A	3
B56	3	3 to <10	N/A	3
B57	5	3 to <10	N/A	3
B58	4	3 to <10	N/A	3

Site	Slope (%)	Slope Class (%)	Sodicity (for 10% to <20% slope class)	LSC Class
B59	1	1 to <3	N/A	2
B60	6	3 to <10	N/A	3
B61	3	3 to <10	N/A	3
B62	0	1 to <3	N/A	2
B63	7	3 to <10	N/A	3
B64	3	3 to <10	N/A	3
B65	1	1 to <3	N/A	2
B66	2	1 to <3	N/A	2
B67	2	1 to <3	N/A	2
B68	2	1 to <3	N/A	2
B69	3	3 to <10	N/A	3
B70	2	1 to <3	N/A	2
B71	6	3 to <10	N/A	3
B72	3	3 to <10	N/A	3
B73	7	3 to <10	N/A	3
B74	1	1 to <3	N/A	2
B75	1	1 to <3	N/A	2
B76	3	3 to <10	N/A	3
B77	1	1 to <3	N/A	2
B78	1	1 to <3	N/A	2
B79	1	1 to <3	N/A	2
B80	0	1 to <3	N/A	2
B86	1	1 to <3	N/A	2
B87	1	1 to <3	N/A	2
B88	1	1 to <3	N/A	2
B95	3	3 to <10	N/A	3
B119	1	1 to <3	N/A	2
B136	5	3 to <10	N/A	3
B137	2	1 to <3	N/A	2
B138	3	3 to <10	N/A	3
B144	3	3 to <10	N/A	3
B145	2	1 to <3	N/A	2
B146	1	1 to <3	N/A	2
B147	1	1 to <3	N/A	2
B148	4	3 to <10	N/A	3
B149	3	3 to <10	N/A	3
B150	3	3 to <10	N/A	3
B151	2	1 to <3	N/A	2

Site	Slope (%)	Slope Class (%)	Sodicity (for 10% to <20% slope class)	LSC Class
B152	2	1 to <3	N/A	2
B153	4	3 to <10	N/A	3
B154	4	3 to <10	N/A	3
B155	2	1 to <3	N/A	2
B156	1	1 to <3	N/A	2
B157	2	1 to <3	N/A	2
B158	2	1 to <3	N/A	2
B159	4	3 to <10	N/A	3
B160	3	3 to <10	N/A	3
B161	5	3 to <10	N/A	3
B162	6	3 to <10	N/A	3
B163	5	3 to <10	N/A	3
B164	2	1 to <3	N/A	2
B165	3	3 to <10	N/A	3
B166	4	3 to <10	N/A	3
B167	3	3 to <10	N/A	3
B168	5	3 to <10	N/A	3
B169	2	1 to <3	N/A	2
B170	4	3 to <10	N/A	3
B171	3	3 to <10	N/A	3
B172	2	1 to <3	N/A	2
B173	5	3 to <10	N/A	3
B174	4	3 to <10	N/A	3
B175	2	1 to <3	N/A	2
B176	2	1 to <3	N/A	2
B177	6	3 to <10	N/A	3
B178	2	1 to <3	N/A	2
B179	2	1 to <3	N/A	2
B180	2	1 to <3	N/A	2
B181	0	1 to <3	N/A	2
B182	0	1 to <3	N/A	2
B183	2	1 to <3	N/A	2
B184	3	3 to <10	N/A	3
B185	3	3 to <10	N/A	3
B186	4	3 to <10	N/A	3
B187	1	1 to <3	N/A	2
B188	4	3 to <10	N/A	3
B189	4	3 to <10	N/A	3

Site	Slope (%)	Slope Class (%)	Sodicity (for 10% to <20% slope class)	LSC Class
B190	3	3 to <10	N/A	3
B191	4	3 to <10	N/A	3
B192	4	3 to <10	N/A	3
B193	1	1 to <3	N/A	2
B194	1	1 to <3	N/A	2
B195	2	1 to <3	N/A	2
B196	1	1 to <3	N/A	2
B197	3	3 to <10	N/A	3
B198	3	3 to <10	N/A	3
B199	4	3 to <10	N/A	3
B200	4	3 to <10	N/A	3
B201	5	3 to <10	N/A	3
B202	7	3 to <10	N/A	3
B203	6	3 to <10	N/A	3
B204	8	3 to <10	N/A	3
B205	4	3 to <10	N/A	3
B206	7	3 to <10	N/A	3
B207	7	3 to <10	N/A	3
B208	6	3 to <10	N/A	3
B209	3	3 to <10	N/A	3
E6	29	20 to <33	N/A	6
E7	35	>33	N/A	7
E8	22	20 to <33	N/A	6

4.2. HAZARD 2: WIND EROSION

There are four factors used to assess wind erosion hazard for each assessment site:

1. Wind erosive power: Wind erosive power for the Gateway Application Area has been mapped as 'Moderate' (OEH, 2012).
2. Wind erosion exposure: Exposure of the land to wind was determined to be consistently 'Moderate' throughout the Gateway Application Area.
3. Surface soil texture: varied surface texture throughout the Gateway Application Area meant the wind erodibility class of surface texture ranges from Low (Loams and Clay Loam) to High (Loamy Sands).
4. Representative average annual rainfall for the region is 597.3 mm (Bureau of Meteorology, 2025), and therefore, the Gateway Application Area lies within the "greater than 500 mm rainfall" category.

The determining factor with regard to wind erosion hazard was therefore the erodibility of each assessment site as determined by soil texture according to the LSC Scheme.

The LSC of each site for the wind erosion limitation is shown in **Table 5**.

Table 5: LSC for Wind Erosion Limitation

Site	Surface Soil Texture	Wind Erodibility Class of Soil Texture	Wind Erosive Power	Exposure to Wind	Average Annual Rainfall (mm)	LSC Class
B34	Silty Loam	Low	Moderate	Moderate	>500mm	2
B35	Silty Clay Loam	Low	Moderate	Moderate	>500mm	2
B36	Clay Loam	Low	Moderate	Moderate	>500mm	2
B37	Loam	Low	Moderate	Moderate	>500mm	2
B38	Silty Clay Loam	Low	Moderate	Moderate	>500mm	2
B39	Loam	Low	Moderate	Moderate	>500mm	2
B40	Loam	Low	Moderate	Moderate	>500mm	2
B41	Loam	Low	Moderate	Moderate	>500mm	2
B42	Loam	Low	Moderate	Moderate	>500mm	2
B43	Loamy Sand	High	Moderate	Moderate	>500mm	5
B44	Loamy Sand	High	Moderate	Moderate	>500mm	5
B45	Loamy Sand	High	Moderate	Moderate	>500mm	5
B46	Loam	Low	Moderate	Moderate	>500mm	2
B47	Loam	Low	Moderate	Moderate	>500mm	2
B48	Loam	Low	Moderate	Moderate	>500mm	2
B49	Loam	Low	Moderate	Moderate	>500mm	2
B50	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B51	Silty Loam	Low	Moderate	Moderate	>500mm	2
B52	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B53	Loam	Low	Moderate	Moderate	>500mm	2
B54	Loamy Sand	High	Moderate	Moderate	>500mm	5
B55	Loam	Low	Moderate	Moderate	>500mm	2
B56	Silty Loam	Low	Moderate	Moderate	>500mm	2
B57	Silty Clay Loam	Low	Moderate	Moderate	>500mm	2
B58	Silty Loam	Low	Moderate	Moderate	>500mm	2
B59	Loam	Low	Moderate	Moderate	>500mm	2
B60	Loam	Low	Moderate	Moderate	>500mm	2
B61	Loam	Low	Moderate	Moderate	>500mm	2
B62	Silty Loam	Low	Moderate	Moderate	>500mm	2
B63	Loam	Low	Moderate	Moderate	>500mm	2
B64	Loamy Sand	High	Moderate	Moderate	>500mm	5
B65	Loam	Low	Moderate	Moderate	>500mm	2
B66	Loam	Low	Moderate	Moderate	>500mm	2
B67	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B68	Loam	Low	Moderate	Moderate	>500mm	2

Site	Surface Soil Texture	Wind Erodibility Class of Soil Texture	Wind Erosive Power	Exposure to Wind	Average Annual Rainfall (mm)	LSC Class
B69	Loam	Low	Moderate	Moderate	>500mm	2
B70	Clay Loam	Low	Moderate	Moderate	>500mm	2
B71	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B72	Loam	Low	Moderate	Moderate	>500mm	2
B73	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B74	Loam	Low	Moderate	Moderate	>500mm	2
B75	Silty Loam	Low	Moderate	Moderate	>500mm	2
B76	Loam	Low	Moderate	Moderate	>500mm	2
B77	Loam	Low	Moderate	Moderate	>500mm	2
B78	Loam	Low	Moderate	Moderate	>500mm	2
B79	Loam	Low	Moderate	Moderate	>500mm	2
B80	Loam	Low	Moderate	Moderate	>500mm	2
B86	Loam	Low	Moderate	Moderate	>500mm	2
B87	Silty Loam	Low	Moderate	Moderate	>500mm	2
B88	Silty Loam	Low	Moderate	Moderate	>500mm	2
B95	Loam	Low	Moderate	Moderate	>500mm	2
B119	Silty Loam	Low	Moderate	Moderate	>500mm	2
B136	Loamy Sand	High	Moderate	Moderate	>500mm	5
B137	Silty Loam	Low	Moderate	Moderate	>500mm	2
B138	Loam	Low	Moderate	Moderate	>500mm	2
B144	Silty Loam	Low	Moderate	Moderate	>500mm	2
B145	Loam	Low	Moderate	Moderate	>500mm	2
B146	Loam	Low	Moderate	Moderate	>500mm	2
B147	-	Low	Moderate	Moderate	>500mm	2
B148	Loam	Low	Moderate	Moderate	>500mm	2
B149	Loam	Low	Moderate	Moderate	>500mm	2
B150	Loam	Low	Moderate	Moderate	>500mm	2
B151	Medium Clay	Low	Moderate	Moderate	>500mm	2
B152	Silty Loam	Low	Moderate	Moderate	>500mm	2
B153	Loam	Low	Moderate	Moderate	>500mm	2
B154	Loamy Sand	High	Moderate	Moderate	>500mm	5
B155	Loamy Sand	High	Moderate	Moderate	>500mm	5
B156	Silty Clay Loam	Low	Moderate	Moderate	>500mm	2
B157	-	-	-	-	-	-
B158	Silty Loam	Low	Moderate	Moderate	>500mm	2
B159	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B160	Silty Loam	Low	Moderate	Moderate	>500mm	2

Site	Surface Soil Texture	Wind Erodibility Class of Soil Texture	Wind Erosive Power	Exposure to Wind	Average Annual Rainfall (mm)	LSC Class
B161	Loam	Low	Moderate	Moderate	>500mm	2
B162	Loam	Low	Moderate	Moderate	>500mm	2
B163	Silty Loam	Low	Moderate	Moderate	>500mm	2
B164	Silty Loam	Low	Moderate	Moderate	>500mm	2
B165	Loamy Sand	High	Moderate	Moderate	>500mm	5
B166	Silty Clay Loam	Low	Moderate	Moderate	>500mm	2
B167	Clay Loam	Low	Moderate	Moderate	>500mm	2
B168	Loam	Low	Moderate	Moderate	>500mm	2
B169	Clay Loam	Low	Moderate	Moderate	>500mm	2
B170	Loamy Sand	High	Moderate	Moderate	>500mm	3
B171	Loam	Low	Moderate	Moderate	>500mm	2
B172	Loam	Low	Moderate	Moderate	>500mm	2
B173	Silty Loam	Low	Moderate	Moderate	>500mm	2
B174	Loam	Low	Moderate	Moderate	>500mm	2
B175	Loam	Low	Moderate	Moderate	>500mm	2
B176	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B177	Loam	Low	Moderate	Moderate	>500mm	2
B178	Loam	Low	Moderate	Moderate	>500mm	2
B179	Loamy Sand	High	Moderate	Moderate	>500mm	5
B180	Loamy Sand	High	Moderate	Moderate	>500mm	5
B181	Loam	Low	Moderate	Moderate	>500mm	2
B182	Loamy Sand	High	Moderate	Moderate	>500mm	5
B183	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B184	Loamy Sand	High	Moderate	Moderate	>500mm	5
B185	Loam	Low	Moderate	Moderate	>500mm	2
B186	Loamy Sand	High	Moderate	Moderate	>500mm	5
B187	Loamy Sand	High	Moderate	Moderate	>500mm	5
B188	Loam	Low	Moderate	Moderate	>500mm	2
B189	Loamy Sand	High	Moderate	Moderate	>500mm	5
B190	Loamy Sand	High	Moderate	Moderate	>500mm	5
B191	Loam	Low	Moderate	Moderate	>500mm	2
B192	Loam	Low	Moderate	Moderate	>500mm	2
B193	Loam	Low	Moderate	Moderate	>500mm	2
B194	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B195	Loamy Sand	High	Moderate	Moderate	>500mm	5
B196	Loam	Low	Moderate	Moderate	>500mm	2
B197	Loam	Low	Moderate	Moderate	>500mm	2

Site	Surface Soil Texture	Wind Erodibility Class of Soil Texture	Wind Erosive Power	Exposure to Wind	Average Annual Rainfall (mm)	LSC Class
B198	Loamy Sand	High	Moderate	Moderate	>500mm	5
B199	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
B200	Loam	Low	Moderate	Moderate	>500mm	2
B201	Silty Loam	Low	Moderate	Moderate	>500mm	2
B202	Loam	Low	Moderate	Moderate	>500mm	2
B203	Loam	Low	Moderate	Moderate	>500mm	2
B204	Loam	Low	Moderate	Moderate	>500mm	2
B205	Loam	Low	Moderate	Moderate	>500mm	2
B206	Loam	Low	Moderate	Moderate	>500mm	2
B207	Loam	Low	Moderate	Moderate	>500mm	2
B208	Loam	Low	Moderate	Moderate	>500mm	2
B209	Silty Loam	Low	Moderate	Moderate	>500mm	2
E6	Loam	Low	Moderate	Moderate	>500mm	2
E7	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3
E8	Sandy Loam	Moderate	Moderate	Moderate	>500mm	3

4.3. HAZARD 3: SOIL STRUCTURE DECLINE

Soil structure decline is assessed on soil characteristics, including surface soil texture, sodicity (laboratory tested) and degree of self-mulching (field tested). These parameters assess the soil structure, stability and resilience of the soil.

The LSC of each site for the soil structure decline limitation is shown in **Table 6**.

Table 6: LSC for Soil Structure Decline Limitation

Site	Surface Soil Texture	Modifier	LSC Class
B34	Silty Loam	Silty	4
B35	Silty Clay Loam	Silty	4
B36	Clay Loam	Normal	3
B37	Loam	Normal	3
B38	Silty Clay Loam	Silty	4
B39	Loam	Normal	3
B40	Loam	Normal	3
B41	Loam	Normal	3
B42	Loam	Normal	3
B43	Loamy Sand	Nil	1
B44	Loamy Sand	Nil	1
B45	Loamy Sand	Nil	1

Site	Surface Soil Texture	Modifier	LSC Class
B46	Loam	Normal	3
B47	Loam	Normal	3
B48	Loam	Normal	3
B49	Loam	Normal	3
B50	Sandy Loam	Nil	1
B51	Silty Loam	Silty	4
B52	Sandy Loam	Nil	1
B53	Loam	Normal	3
B54	Loamy Sand	Nil	1
B55	Loam	Normal	3
B56	Silty Loam	Silty	4
B57	Silty Clay Loam	Silty	4
B58	Silty Loam	Silty	4
B59	Loam	Normal	3
B60	Loam	Normal	3
B61	Loam	Normal	3
B62	Silty Loam	Silty	4
B63	Loam	Normal	3
B64	Loamy Sand	Nil	1
B65	Loam	Normal	3
B66	Loam	Normal	3
B67	Sandy Loam	Nil	1
B68	Loam	Normal	3
B69	Loam	Normal	3
B70	Clay Loam	Normal	3
B71	Sandy Loam	Nil	1
B72	Loam	Normal	3
B73	Sandy Loam	Nil	1
B74	Loam	Normal	3
B75	Silty Loam	Silty	4
B76	Loam	Normal	3
B77	Loam	Normal	3
B78	Loam	Normal	3
B79	Loam	Normal	3
B80	Loam	Normal	3
B86	Loam	Normal	3
B87	Silty Loam	Silty	4
B88	Silty Loam	Moderately Sodic	6

Site	Surface Soil Texture	Modifier	LSC Class
B95	Loam	Normal	3
B119	Silty Loam	Silty	4
B136	Loamy Sand	Nil	1
B137	Silty Loam	Silty	4
B138	Loam	Moderately Sodic	6
B144	Silty Loam	Silty	4
B145	Loam	Normal	3
B146	Loam	Normal	3
B147	-	-	-
B148	Loam	Normal	3
B149	Loam	Normal	3
B150	Loam	Normal	3
B151	Medium Clay	Weakly self-mulching	3
B152	Silty Loam	Silty	4
B153	Loam	Normal	3
B154	Loamy Sand	Nil	1
B155	Loamy Sand	Nil	1
B156	Silty Clay Loam	Silty	4
B157	-	-	-
B158	Silty Loam	Silty	4
B159	Sandy Loam	Nil	1
B160	Silty Loam	Silty	4
B161	Loam	Normal	3
B162	Loam	Normal	3
B163	Silty Loam	Silty	4
B164	Silty Loam	Silty	4
B165	Loamy Sand	Nil	1
B166	Silty Clay Loam	Silty	4
B167	Clay Loam	Normal	3
B168	Loam	Normal	3
B169	Clay Loam	Normal	3
B170	Loamy Sand	Nil	1
B171	Loam	Normal	3
B172	Loam	Normal	3
B173	Silty Loam	Silty	4
B174	Loam	Normal	3
B175	Loam	Normal	3
B176	Sandy Loam	Nil	1

Site	Surface Soil Texture	Modifier	LSC Class
B177	Loam	Normal	3
B178	Loam	Normal	3
B179	Loamy Sand	Nil	1
B180	Loamy Sand	Nil	1
B181	Loam	Normal	3
B182	Loamy Sand	Nil	1
B183	Sandy Loam	Nil	1
B184	Loamy Sand	Nil	1
B185	Loam	Normal	3
B186	Loamy Sand	Nil	1
B187	Loamy Sand	Nil	1
B188	Loam	Normal	3
B189	Loamy Sand	Nil	1
B190	Loamy Sand	Nil	1
B191	Loam	Normal	3
B192	Loam	Normal	3
B193	Loam	Normal	3
B194	Sandy Loam	Nil	1
B195	Loamy Sand	Nil	1
B196	Loam	Normal	3
B197	Loam	Normal	3
B198	Loamy Sand	Nil	1
B199	Sandy Loam	Nil	1
B200	Loam	Normal	3
B201	Silty Loam	Silty	4
B202	Loam	Normal	3
B203	Loam	Normal	3
B204	Loam	Normal	3
B205	Loam	Normal	3
B206	Loam	Normal	3
B207	Loam	Normal	3
B208	Loam	Normal	3
B209	Silty Loam	Silty	4
E6	Loam	Normal	3
E7	Sandy Loam	Nil	1
E8	Sandy Loam	Nil	1

4.4. HAZARD 4: SOIL ACIDIFICATION

The soil acidification hazard is assessed using three criteria, being soil buffering capacity, pH and mean annual rainfall. In this assessment, soil buffering capacity was based on surface soil texture, surface soil pH and a regional mean annual rainfall of 550 – 700 mm.

The LSC of each site for the soil acidification limitation is shown in **Table 7**.

Table 7: LSC for Soil Acidification Limitation

Site	Surface Soil Texture	Buffering Capacity	Mean Annual Rainfall (mm)	Surface Soil pH	LSC Class
B34	Silty Loam	Moderate	550-700	6.3	3
B35	Silty Clay Loam	Moderate	550-700	5.4	4
B36	Clay Loam	Moderate	550-700	5.7	3
B37	Loam	Moderate	550-700	5.8	3
B38	Silty Clay Loam	Moderate	550-700	6.3	3
B39	Loam	Moderate	550-700	5.7	3
B40	Loam	Moderate	550-700	5.9	3
B41	Loam	Moderate	550-700	5.9	3
B42	Loam	Moderate	550-700	5.7	3
B43	Loamy Sand	Very Low	550-700	5.7	5
B44	Loamy Sand	Very Low	550-700	6	5
B45	Loamy Sand	Very Low	550-700	6.4	5
B46	Loam	Moderate	550-700	5.7	3
B47	Loam	Moderate	550-700	5.7	3
B48	Loam	Moderate	550-700	5.3	4
B49	Loam	Moderate	550-700	5.6	3
B50	Sandy Loam	Very Low	550-700	5.7	5
B51	Silty Loam	Moderate	550-700	5.9	3
B52	Sandy Loam	Very Low	550-700	6	5
B53	Loam	Moderate	550-700	6	3
B54	Loamy Sand	Very Low	550-700	5.4	5
B55	Loam	Moderate	550-700	5.5	3
B56	Silty Loam	Moderate	550-700	5.9	3
B57	Silty Clay Loam	Moderate	550-700	5.9	3
B58	Silty Loam	Moderate	550-700	6.2	3
B59	Loam	Moderate	550-700	5.7	3
B60	Loam	Moderate	550-700	5.9	3
B61	Loam	Moderate	550-700	6.2	3
B62	Silty Loam	Moderate	550-700	6.2	3
B63	Loam	Moderate	550-700	6.7	3
B64	Loamy Sand	Very Low	550-700	5.5	5

Site	Surface Soil Texture	Buffering Capacity	Mean Annual Rainfall (mm)	Surface Soil pH	LSC Class
B65	Loam	Moderate	550-700	5.7	3
B66	Loam	Moderate	550-700	5.9	3
B67	Sandy Loam	Very Low	550-700	5.6	5
B68	Loam	Moderate	550-700	5.6	3
B69	Loam	Moderate	550-700	5.9	3
B70	Clay Loam	Moderate	550-700	5.6	3
B71	Sandy Loam	Very Low	550-700	5.9	5
B72	Loam	Moderate	550-700	5.6	3
B73	Sandy Loam	Very Low	550-700	5.6	5
B74	Loam	Moderate	550-700	5.9	3
B75	Silty Loam	Moderate	550-700	5.6	3
B76	Loam	Moderate	550-700	6.4	3
B77	Loam	Moderate	550-700	5.7	3
B78	Loam	Moderate	550-700	5.7	3
B79	Loam	Moderate	550-700	5.8	3
B80	Loam	Moderate	550-700	5.3	4
B86	Loam	Moderate	550-700	5.2	4
B87	Silty Loam	Moderate	550-700	5.6	3
B88	Silty Loam	Moderate	550-700	8.3	1
B89	Loamy Sand	Very Low	550-700	6.5	5
B90	Loamy Sand	Very Low	550-700	6	5
B95	Loam	Moderate	550-700	5.9	3
B119	Silty Loam	Moderate	550-700	5.8	3
B136	Loamy Sand	Very Low	550-700	5.7	5
B137	Silty Loam	Moderate	550-700	6.2	3
B138	Loam	Moderate	550-700	6.5	3
B144	Silty Loam	Moderate	550-700	5.8	3
B145	Loam	Moderate	550-700	6.4	3
B146	Loam	Moderate	550-700	6.3	3
B147	-	-	550-700	-	-
B148	Loam	Moderate	550-700	6.7	3
B149	Loam	Moderate	550-700	6	3
B150	Loam	Moderate	550-700	6.4	3
B151	Medium Clay	High	550-700	6.8	2
B152	Silty Loam	Moderate	550-700	5.9	3
B153	Loam	Moderate	550-700	6.2	3
B154	Loamy Sand	Very Low	550-700	5.5	5
B155	Loamy Sand	Very Low	550-700	5.3	5

Site	Surface Soil Texture	Buffering Capacity	Mean Annual Rainfall (mm)	Surface Soil pH	LSC Class
B156	Silty Clay Loam	Moderate	550-700	6.2	3
B157	-	-	550-700	-	-
B158	Silty Loam	Moderate	550-700	5.5	3
B159	Sandy Loam	Very Low	550-700	6.1	5
B160	Silty Loam	Moderate	550-700	6.3	3
B161	Loam	Moderate	550-700	7.1	3
B162	Loam	Moderate	550-700	6.5	3
B163	Silty Loam	Moderate	550-700	6.3	3
B164	Silty Loam	Moderate	550-700	7.3	3
B165	Loamy Sand	Very Low	550-700	5.5	5
B166	Silty Clay Loam	Moderate	550-700	6.2	3
B167	Clay Loam	Moderate	550-700	6.3	3
B168	Loam	Moderate	550-700	6.2	3
B169	Clay Loam	Moderate	550-700	6	3
B170	Loamy Sand	Very Low	550-700	6.3	5
B171	Loam	Moderate	550-700	6.1	3
B172	Loam	Moderate	550-700	5.8	3
B173	Silty Loam	Moderate	550-700	6.4	3
B174	Loam	Moderate	550-700	5.7	3
B175	Loam	Moderate	550-700	5.8	3
B176	Sandy Loam	Moderate	550-700	5.6	3
B177	Loam	Moderate	550-700	5.8	3
B178	Loam	Moderate	550-700	5.5	3
B179	Loamy Sand	Very Low	550-700	5.4	5
B180	Loamy Sand	Very Low	550-700	5.3	5
B181	Loam	Moderate	550-700	5.8	3
B182	Loamy Sand	Very Low	550-700	6.5	5
B183	Sandy Loam	Very Low	550-700	5.9	5
B184	Loamy Sand	Very Low	550-700	6	5
B185	Loam	Moderate	550-700	6.1	3
B186	Loamy Sand	Very Low	550-700	5.8	5
B187	Loamy Sand	Very Low	550-700	5.6	5
B188	Loam	Moderate	550-700	5.9	3
B189	Loamy Sand	Very Low	550-700	5.8	5
B190	Loamy Sand	Very Low	550-700	6	5
B191	Loam	Moderate	550-700	5.8	3
B192	Loam	Moderate	550-700	6.2	3
B193	Loam	Moderate	550-700	5.5	3

Site	Surface Soil Texture	Buffering Capacity	Mean Annual Rainfall (mm)	Surface Soil pH	LSC Class
B194	Sandy Loam	Very Low	550-700	6.1	5
B195	Loamy Sand	Very Low	550-700	5.9	5
B196	Loam	Moderate	550-700	5.6	3
B197	Loam	Moderate	550-700	5.6	3
B198	Loamy Sand	Very Low	550-700	6	5
B199	Sandy Loam	Very Low	550-700	5.8	5
B200	Loam	Moderate	550-700	5.6	3
B201	Silty Loam	Moderate	550-700	5.6	3
B202	Loam	Moderate	550-700	5.6	3
B203	Loam	Moderate	550-700	6.2	3
B204	Loam	Moderate	550-700	5.8	3
B205	Loam	Moderate	550-700	6.1	3
B206	Loam	Moderate	550-700	5.2	4
B207	Loam	Moderate	550-700	6.6	3
B208	Loam	Moderate	550-700	6.6	3
B209	Silty Loam	Moderate	550-700	6.1	3
E6	Loam	Moderate	550-700	6.7	3
E7	Sandy Loam	Very Low	550-700	6.1	5
E8	Sandy Loam	Very Low	550-700	6.8	5

4.5. HAZARD 5: SALINITY

The salinity hazard is determined through a range of data and criteria. The recharge and discharge potential for the site was determined based on an average annual rainfall and evaporation as well as landscape position and landform features. Generally, this would suggest a high recharge potential and a low discharge potential. The Gateway Application Area is located in an area of low salt store according to the Salt Store Map of NSW included within the LSC Scheme. However, due to the current available scale of this mapping, laboratory tested EC values were used to determine salt store. The Gateway Application Area is generally non-saline, with very minor presence of saline soils.

The LSC of each site for the salinity limitation is shown in **Table 8**.

Table 8: LSC for Salinity Limitation

Site	Recharge Potential	Discharge Potential	Salt Store	LSC Class
B34	High	Moderate	Low	2
B35	High	Low	Low	1
B36	High	Low	Low	1
B37	High	Low	Low	1
B38	High	High	Low	3
B39	High	Low	Low	1

Site	Recharge Potential	Discharge Potential	Salt Store	LSC Class
B40	Moderate	Low	Low	1
B41	High	Low	Low	1
B42	High	Low	Low	1
B43	High	Low	Low	1
B44	High	Low	Low	1
B45	High	Low	Low	1
B46	High	Low	Low	1
B47	High	Low	Low	1
B48	High	Low	Low	1
B49	High	Low	Low	1
B50	Moderate	Low	Low	1
B51	High	Low	Low	1
B52	Moderate	Low	Low	1
B53	High	Low	Low	1
B54	Moderate	Low	Low	1
B55	High	Low	Low	1
B56	High	Low	Low	1
B57	High	Low	Low	1
B58	High	Low	Low	1
B59	High	Moderate	Low	2
B60	High	Low	Low	1
B61	High	Low	Low	1
B62	High	High	Low	3
B63	High	Low	Low	1
B64	High	Low	Low	1
B65	High	Low	Low	1
B66	High	Low	Low	1
B67	High	Low	Low	1
B68	High	Low	Low	1
B69	High	Low	Low	1
B70	High	Low	Moderate	4
B71	High	Low	Low	1
B72	High	Low	Low	1
B73	High	Low	Low	1
B74	High	Moderate	Low	2
B75	High	Moderate	Low	2
B76	High	Low	Low	1
B77	High	Moderate	Low	2

Site	Recharge Potential	Discharge Potential	Salt Store	LSC Class
B78	High	Moderate	Low	2
B79	High	Moderate	Low	2
B80	High	Moderate	Low	2
B86	High	Moderate	Low	2
B87	High	Low	Low	1
B88	High	Low	High	5
B95	High	Low	Low	1
B119	High	Moderate	Low	2
B136	High	Low	Low	1
B137	High	Low	Low	1
B138	High	Low	Moderate	4
B144	High	Low	Low	1
B145	High	Low	Low	1
B146	High	Low	Low	1
B147	-	-	-	-
B148	High	Low	Low	1
B149	High	Low	Low	1
B150	High	Low	Low	1
B151	High	Low	Low	1
B152	High	Low	Low	1
B153	High	Low	Low	1
B154	High	Low	Low	1
B155	High	Low	Low	1
B156	High	Low	High	5
B157	-	-	-	-
B158	High	Moderate	Low	2
B159	High	Low	Low	1
B160	High	Low	Low	1
B161	High	Low	Low	1
B162	High	Low	Low	1
B163	High	Low	Low	1
B164	High	Low	Low	1
B165	High	Low	Low	1
B166	High	Low	Low	1
B167	High	Low	Low	1
B168	High	Low	Low	1
B169	High	Low	Low	1
B170	High	Low	Low	1

Site	Recharge Potential	Discharge Potential	Salt Store	LSC Class
B171	High	Low	Low	1
B172	High	Low	Low	1
B173	High	Low	Low	1
B174	High	Low	Low	1
B175	High	Low	Low	1
B176	High	Low	Low	1
B177	High	Low	Low	1
B178	High	Low	Low	1
B179	High	Low	Low	1
B180	High	Low	Low	1
B181	High	High	Low	3
B182	High	High	Low	3
B183	High	High	Low	3
B184	High	Moderate	Low	2
B185	High	Low	Low	1
B186	High	Low	Low	1
B187	High	Low	Low	1
B188	High	Low	Low	1
B189	High	Low	Low	1
B190	High	Low	Low	1
B191	High	Low	Low	1
B192	High	Low	Low	1
B193	High	Low	Low	1
B194	High	Low	Low	1
B195	High	Low	Low	1
B196	High	Low	Low	1
B197	High	Low	Low	1
B198	High	Low	Low	1
B199	High	Low	Low	1
B200	High	Low	Low	1
B201	High	Low	Low	1
B202	High	Low	Low	1
B203	High	Low	Low	1
B204	High	Low	Low	1
B205	High	Low	Low	1
B206	High	Low	Low	1
B207	High	Low	Low	1
B208	High	Low	Low	1

Site	Recharge Potential	Discharge Potential	Salt Store	LSC Class
B209	High	Low	Low	1
E6	Moderate	Low	Low	1
E7	Moderate	Low	Low	1
E8	Moderate	Low	Low	1

4.6. HAZARD 6: WATER LOGGING

Water logging was determined by the soil drainage characteristics, specifically field assessment evidence of soil structure, soil texture, mottling, bleaching, as well as slope and climate. These soil drainage characteristics are presented in the soil profile descriptions in **Appendix 1**. Soils within the Gateway Application Area were generally found to be moderately well to imperfectly drained, with some instances of well drained and poorly drained soils.

The LSC of each site for the waterlogging limitation is shown in **Table 9**.

Table 9: LSC for Waterlogging Limitation

Site	Typical Waterlogging Duration (Months)	Return Period	Soil Drainage	LSC Class
B34	0.25 - 2	Every year	Imperfect	3
B35	>3	Every year	Poor	6
B36	0.25 - 2	Every year	Imperfect	3
B37	0.25 - 2	Every year	Imperfect	3
B38	0.25 - 2	Every year	Imperfect	3
B39	0.25 - 2	Every year	Imperfect	3
B40	>3	Every year	Poor	6
B41	0 - 0.25	Every year	Moderately Well	2
B42	0.25 - 2	Every year	Imperfect	3
B43	0 - 0.25	Every year	Moderately Well	2
B44	0.25 - 2	Every year	Imperfect	3
B45	0.25 - 2	Every year	Imperfect	3
B46	0 - 0.25	Every year	Moderately Well	2
B47	>3	Every year	Poor	6
B48	>3	Every year	Poor	6
B49	>3	Every year	Poor	6
B50	0	Every year	Well	1
B51	>3	Every year	Poor	6
B52	0	Every year	Well	1
B53	0 - 0.25	Every year	Moderately Well	2
B54	>3	Every year	Poor	6
B55	0.25 - 2	Every year	Imperfect	3
B56	0.25 - 2	Every year	Imperfect	3

Site	Typical Waterlogging Duration (Months)	Return Period	Soil Drainage	LSC Class
B57	0 - 0.25	Every year	Moderately Well	2
B58	>3	Every year	Poor	6
B59	0 - 0.25	Every year	Moderately Well	2
B60	0 - 0.25	Every year	Moderately Well	2
B61	0.25 - 2	Every year	Imperfect	3
B62	0	Every year	Well	1
B63	0.25 - 2	Every year	Imperfect	3
B64	>3	Every year	Poor	6
B65	0.25 - 2	Every year	Imperfect	3
B66	>3	Every year	Poor	6
B67	>3	Every year	Poor	6
B68	>3	Every year	Poor	6
B69	0.25 - 2	Every year	Imperfect	3
B70	0 - 0.25	Every year	Moderately Well	2
B71	>3	Every year	Poor	6
B72	>3	Every year	Poor	6
B73	0.25 - 2	Every year	Imperfect	3
B74	0.25 - 2	Every year	Imperfect	3
B75	0.25 - 2	Every year	Imperfect	3
B76	0.25 - 2	Every year	Imperfect	3
B77	0.25 - 2	Every year	Imperfect	3
B78	0.25 - 2	Every year	Imperfect	3
B79	0.25 - 2	Every year	Imperfect	3
B80	0.25 - 2	Every year	Imperfect	3
B86	0.25 - 2	Every year	Imperfect	3
B87	0 - 0.25	Every year	Moderately Well	2
B88	>3	Every year	Poor	6
B95	0	Every year	Well	1
B119	0.25 - 2	Every year	Imperfect	3
B136	>3	Every year	Poor	6
B137	>3	Every year	Poor	6
B138	>3	Every year	Poor	6
B144	0.25 - 2	Every year	Imperfect	3
B145	0 - 0.25	Every year	Moderately Well	2
B146	0 - 0.25	Every year	Moderately Well	2
B147	>3	Every year	Poor	6
B148	0 - 0.25	Every year	Moderately Well	2

Site	Typical Waterlogging Duration (Months)	Return Period	Soil Drainage	LSC Class
B149	0 - 0.25	Every year	Moderately Well	2
B150	0 - 0.25	Every year	Moderately Well	2
B151	0 - 0.25	Every year	Moderately Well	2
B152	0 - 0.25	Every year	Moderately Well	2
B153	0.25 - 2	Every year	Imperfect	3
B154	0.25 - 2	Every year	Imperfect	3
B155	>3	Every year	Poor	6
B156	>3	Every year	Poor	6
B157	-	Every year	-	-
B158	0 - 0.25	Every year	Moderately Well	2
B159	0 - 0.25	Every year	Moderately Well	2
B160	>3	Every year	Poor	6
B161	>3	Every year	Poor	6
B162	0.25 - 2	Every year	Imperfect	3
B163	>3	Every year	Poor	6
B164	>3	Every year	Poor	6
B165	0.25 - 2	Every year	Imperfect	3
B166	0 - 0.25	Every year	Moderately Well	2
B167	0 - 0.25	Every year	Moderately Well	2
B168	0 - 0.25	Every year	Moderately Well	2
B169	0 - 0.25	Every year	Moderately Well	2
B170	0.25 - 2	Every year	Imperfect	3
B171	0.25 - 2	Every year	Imperfect	3
B172	0.25 - 2	Every year	Imperfect	3
B173	0.25 - 2	Every year	Imperfect	3
B174	0 - 0.25	Every year	Moderately Well	2
B175	>3	Every year	Poor	6
B176	0 - 0.25	Every year	Moderately Well	2
B177	0 - 0.25	Every year	Moderately Well	2
B178	0 - 0.25	Every year	Moderately Well	2
B179	0 - 0.25	Every year	Moderately Well	2
B180	0.25 - 2	Every year	Imperfect	3
B181	0 - 0.25	Every year	Moderately Well	2
B182	0 - 0.25	Every year	Moderately Well	2
B183	0.25 - 2	Every year	Imperfect	3
B184	0 - 0.25	Every year	Moderately Well	2
B185	0.25 - 2	Every year	Imperfect	3

Site	Typical Waterlogging Duration (Months)	Return Period	Soil Drainage	LSC Class
B186	0.25 - 2	Every year	Imperfect	3
B187	0.25 - 2	Every year	Imperfect	3
B188	0 - 0.25	Every year	Moderately Well	2
B189	0 - 0.25	Every year	Moderately Well	2
B190	0.25 - 2	Every year	Imperfect	3
B191	0.25 - 2	Every year	Imperfect	3
B192	0.25 - 2	Every year	Imperfect	3
B193	0.25 - 2	Every year	Imperfect	3
B194	0.25 - 2	Every year	Imperfect	3
B195	0.25 - 2	Every year	Imperfect	3
B196	0 - 0.25	Every year	Moderately Well	2
B197	0.25 - 2	Every year	Imperfect	3
B198	0.25 - 2	Every year	Imperfect	3
B199	0 - 0.25	Every year	Moderately Well	2
B200	>3	Every year	Poor	6
B201	0.25 - 2	Every year	Imperfect	3
B202	0.25 - 2	Every year	Imperfect	3
B203	0.25 - 2	Every year	Imperfect	3
B204	0.25 - 2	Every year	Imperfect	3
B205	0.25 - 2	Every year	Imperfect	3
B206	0.25 - 2	Every year	Imperfect	3
B207	0.25 - 2	Every year	Imperfect	3
B208	0 - 0.25	Every year	Moderately Well	2
B209	0 - 0.25	Every year	Moderately Well	2
E6	0 - 0.25	Every year	Moderately Well	2
E7	0 - 0.25	Every year	Moderately Well	2
E8	0 - 0.25	Every year	Moderately Well	2

4.7. HAZARD 7: SHALLOW SOILS AND ROCKINESS

The shallow soils and rockiness hazard is determined by the estimated exposure of rocky outcrops and average soil depth, which varied throughout the Gateway Application Area.

The LSC of each site for the shallow soils and rockiness limitation is shown in **Table 10**.

Table 10: LSC for Shallow Soils and Rockiness Limitation

Site	Rocky Outcrop Coverage (%)	Soil Depth (cm[1])	LSC Class
B34	Nil	>100	1
B35	<30	75-<100	3
B36	<30	50-<75	4
B37	<30	75-<100	3
B38	Nil	>100	1
B39	<30	50-<75	4
B40	<30	50-<75	4
B41	<30	50-<75	4
B42	<30	75-<100	3
B43	<30	50-<75	4
B44	<30	75-<100	3
B45	<30	75-<100	3
B46	<30	75-<100	3
B47	<30	75-<100	3
B48	<30	75-<100	3
B49	<30	75-<100	3
B50	<30	75-<100	3
B51	<30	75-<100	3
B52	<30	75-<100	3
B53	<30	50-<75	4
B54	<30	75-<100	3
B55	<30	75-<100	3
B56	<30	75-<100	3
B57	<30	50-<75	4
B58	<30	75-<100	3
B59	<30	50-<75	4
B60	<30	50-<75	4
B61	<30	50-<75	4
B62	<30	75-<100	3
B63	<30	25-<50	6
B64	<30	75-<100	3

Site	Rocky Outcrop Coverage (%)	Soil Depth (cm¹)	LSC Class
B65	<30	75-<100	3
B66	<30	50-<75	4
B67	<30	75-<100	3
B68	<30	75-<100	3
B69	<30	75-<100	3
B70	<30	75-<100	3
B71	<30	75-<100	3
B72	<30	75-<100	3
B73	<30	75-<100	3
B74	<30	75-<100	3
B75	<30	75-<100	3
B76	<30	75-<100	3
B77	<30	75-<100	3
B78	<30	75-<100	3
B79	<30	75-<100	3
B80	<30	75-<100	3
B86	<30	75-<100	3
B87	<30	50-<75	4
B88	<30	75-<100	3
B95	<30	75-<100	3
B119	<30	75-<100	3
B136	<30	75-<100	3
B137	<30	75-<100	3
B138	<30	75-<100	3
B144	<30	75-<100	3
B145	<30	75-<100	3
B146	<30	75-<100	3
B147	-	-	-
B148	<30	75-<100	3
B149	<30	75-<100	3
B150	<30	75-<100	3
B151	<30	50-<75	4
B152	<30	50-<75	4
B153	<30	75-<100	3
B154	<30	75-<100	3
B155	<30	75-<100	3
B156	<30	75-<100	3
B157	50 - 70	-	6

Site	Rocky Outcrop Coverage (%)	Soil Depth (cm¹)	LSC Class
B158	<30	75-<100	3
B159	<30	50-<75	4
B160	<30	75-<100	3
B161	<30	75-<100	3
B162	<30	75-<100	3
B163	<30	75-<100	3
B164	<30	75-<100	3
B165	<30	75-<100	3
B166	<30	75-<100	3
B167	<30	75-<100	3
B168	<30	75-<100	3
B169	<30	50-<75	4
B170	<30	75-<100	3
B171	<30	50-<75	4
B172	<30	50-<75	4
B173	<30	75-<100	3
B174	<30	75-<100	3
B175	<30	75-<100	3
B176	<30	75-<100	3
B177	<30	75-<100	3
B178	<30	75-<100	3
B179	<30	75-<100	3
B180	<30	75-<100	3
B181	<30	75-<100	3
B182	<30	75-<100	3
B183	<30	75-<100	3
B184	<30	75-<100	3
B185	<30	50-<75	4
B186	<30	75-<100	3
B187	<30	50-<75	4
B188	<30	75-<100	3
B189	<30	75-<100	3
B190	<30	75-<100	3
B191	<30	75-<100	3
B192	<30	50-<75	4
B193	<30	50-<75	4
B194	<30	75-<100	3
B195	<30	75-<100	3

Site	Rocky Outcrop Coverage (%)	Soil Depth (cm[1])	LSC Class
B196	<30	50-<75	4
B197	<30	50-<75	4
B198	<30	75-<100	3
B199	<30	50-<75	4
B200	<30	50-<75	4
B201	<30	75-<100	3
B202	<30	75-<100	3
B203	<30	75-<100	3
B204	<30	75-<100	3
B205	<30	75-<100	3
B206	<30	75-<100	3
B207	<30	75-<100	3
B208	<30	50-<75	4
B209	<30	75-<100	3
E6	<30	75-<100	3
E7	<30	75-<100	3
E8	<30	75-<100	3

[1]cm = centimetre

4.8. HAZARD 8: MASS MOVEMENT

The mass movement hazard is assessed through a combination of three criteria: mean annual rainfall, presence of mass movement and slope class. Mass movement was not observed within the Gateway Application Area.

The LSC of each site for the mass movement limitation is shown in **Table 11**.

Table 11: LSC for Mass Movement Limitation

Site	Mean Annual Rainfall (mm)	Mass Movement Present	LSC Class
B34	>500	No	1
B35	>500	No	1
B36	>500	No	1
B37	>500	No	1
B38	>500	No	1
B39	>500	No	1
B40	>500	No	1
B41	>500	No	1
B42	>500	No	1
B43	>500	No	1
B44	>500	No	1

Site	Mean Annual Rainfall (mm)	Mass Movement Present	LSC Class
B45	>500	No	1
B46	>500	No	1
B47	>500	No	1
B48	>500	No	1
B49	>500	No	1
B50	>500	No	1
B51	>500	No	1
B52	>500	No	1
B53	>500	No	1
B54	>500	No	1
B55	>500	No	1
B56	>500	No	1
B57	>500	No	1
B58	>500	No	1
B59	>500	No	1
B60	>500	No	1
B61	>500	No	1
B62	>500	No	1
B63	>500	No	1
B64	>500	No	1
B65	>500	No	1
B66	>500	No	1
B67	>500	No	1
B68	>500	No	1
B69	>500	No	1
B70	>500	No	1
B71	>500	No	1
B72	>500	No	1
B73	>500	No	1
B74	>500	No	1
B75	>500	No	1
B76	>500	No	1
B77	>500	No	1
B78	>500	No	1
B79	>500	No	1
B80	>500	No	1
B86	>500	No	1
B87	>500	No	1

Site	Mean Annual Rainfall (mm)	Mass Movement Present	LSC Class
B88	>500	No	1
B95	>500	No	1
B119	>500	No	1
B136	>500	No	1
B137	>500	No	1
B138	>500	No	1
B144	>500	No	1
B145	>500	No	1
B146	>500	No	1
B147	>500	No	1
B148	>500	No	1
B149	>500	No	1
B150	>500	No	1
B151	>500	No	1
B152	>500	No	1
B153	>500	No	1
B154	>500	No	1
B155	>500	No	1
B156	>500	No	1
B157	>500	No	1
B158	>500	No	1
B159	>500	No	1
B160	>500	No	1
B161	>500	No	1
B162	>500	No	1
B163	>500	No	1
B164	>500	No	1
B165	>500	No	1
B166	>500	No	1
B167	>500	No	1
B168	>500	No	1
B169	>500	No	1
B170	>500	No	1
B171	>500	No	1
B172	>500	No	1
B173	>500	No	1
B174	>500	No	1
B175	>500	No	1

Site	Mean Annual Rainfall (mm)	Mass Movement Present	LSC Class
B176	>500	No	1
B177	>500	No	1
B178	>500	No	1
B179	>500	No	1
B180	>500	No	1
B181	>500	No	1
B182	>500	No	1
B183	>500	No	1
B184	>500	No	1
B185	>500	No	1
B186	>500	No	1
B187	>500	No	1
B188	>500	No	1
B189	>500	No	1
B190	>500	No	1
B191	>500	No	1
B192	>500	No	1
B193	>500	No	1
B194	>500	No	1
B195	>500	No	1
B196	>500	No	1
B197	>500	No	1
B198	>500	No	1
B199	>500	No	1
B200	>500	No	1
B201	>500	No	1
B202	>500	No	1
B203	>500	No	1
B204	>500	No	1
B205	>500	No	1
B206	>500	No	1
B207	>500	No	1
B208	>500	No	1
B209	>500	No	1
E6	>500	No	1
E7	>500	No	1
E8	>500	No	1

5. LSC RESULTS SUMMARY

The 124 soil test sites relevant to the Gateway Application Area have been subject to the site verification assessment of LSC, in accordance with the LSC Scheme as outlined in Sections 2 and 3.

The Gateway Application Area contains five LSC classes:

- LSC class 3: high capability land – covering 107 ha.
- LSC class 4: moderate capability land – covering 212 ha.
- LSC class 5: moderately low capability land – covering 71 ha.
- LSC class 6: low capability land – covering 212 ha.
- LSC class 7: very low capability land – covering 65 ha.

Class 3 land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation. The key limitations of this class within the Gateway Application Area include water erosion, soil acidity, soil structure decline, waterlogging and soil depth.

Class 4 land has moderate to high limitations for high-impact land uses that will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology. The key limitations of this class within the Gateway Application Area generally consist of soil structure decline and soil depth.

Class 5 land has high limitations for high-impact land uses. This will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation. The key limitations of this class within the Gateway Application Area include wind erosion and soil acidity.

Class 6 land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation. The key limitations of this class within the Gateway Application Area include soil structure decline, waterlogging and soil depth.

LSC class 7 land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. The key limitation of this class within the Gateway Application Area is water erosion (slope).

The spatial extent of each LSC class is shown in **Figure 1A**. **Table 12** shows the summary and final verification of the LSC for each site.

Table 12: Verified Land and Soil Capability

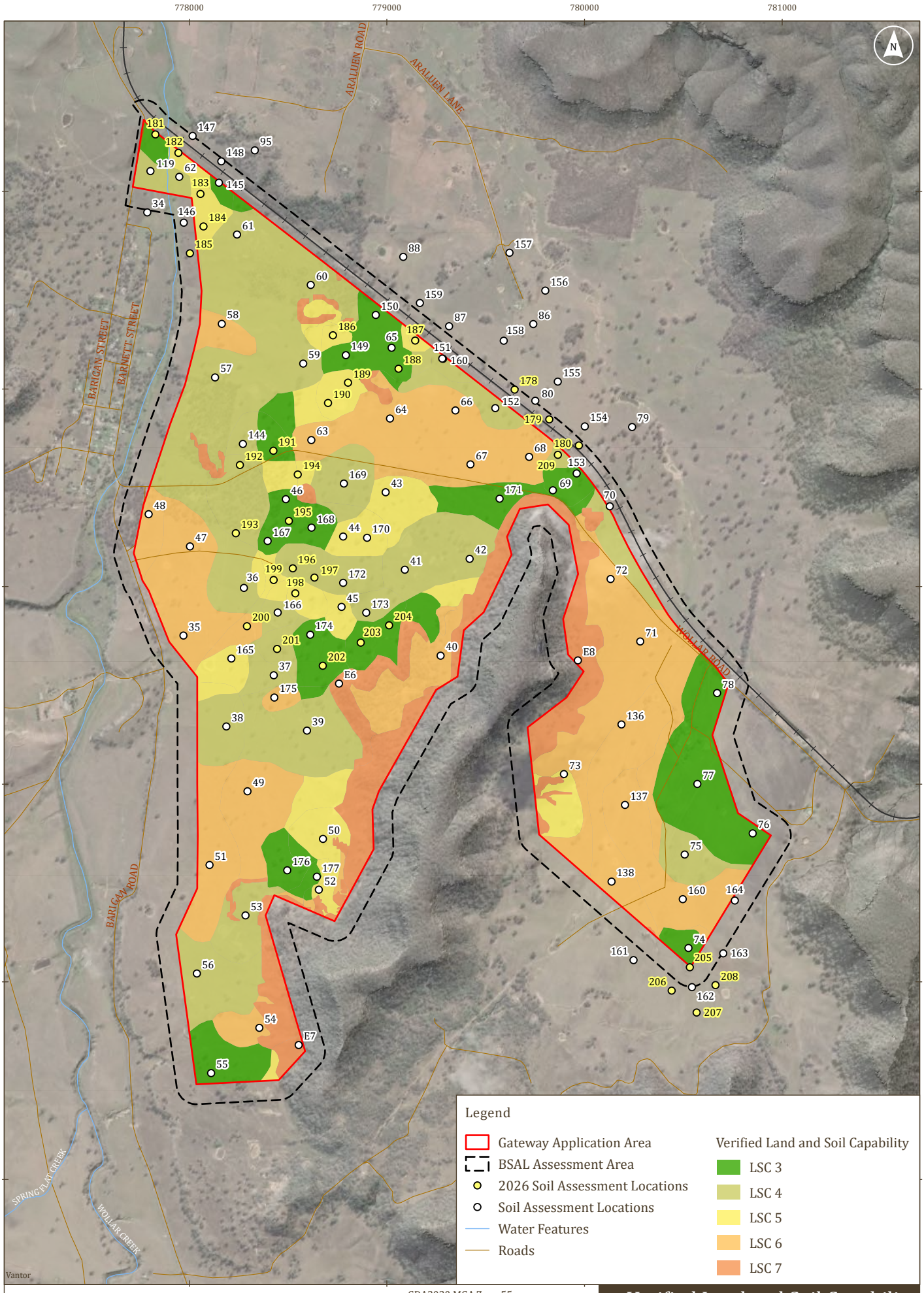
		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
Site No.	Soil Classification	Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
B34	Haplic Eutrophic Grey Dermosol	2	2	4	3	2	3	1	1	4
B35	Mottled Mesotrophic Red Kurosol	3	2	4	4	1	6	3	1	6
B36	Mottled Eutrophic Red Chromosol	2	2	3	3	1	3	4	1	4
B37	Mottled Eutrophic Brown Kurosol	3	2	3	3	1	3	3	1	4
B38	Mottled Eutrophic Black Dermosol	2	2	4	3	3	3	1	1	4
B39	Haplic Eutrophic Brown Chromosol	3	2	3	3	1	3	4	1	4
B40	Mottled Eutrophic Red Chromosol	3	2	3	3	1	6	4	1	6
B41	Haplic Eutrophic Red Chromosol	3	2	3	3	1	2	4	1	4
B42	Bleached-Sodic Eutrophic Yellow Chromosol	3	2	3	3	1	3	3	1	4
B43	Haplic Eutrophic Red Chromosol	3	5	1	5	1	2	4	1	5
B44	Mottled Eutrophic Red Chromosol	2	5	1	5	1	3	3	1	5
B45	Bleached-Sodic Eutrophic Yellow Chromosol	3	5	1	5	1	3	3	1	5
B46	Sodic Eutrophic Red Chromosol	2	2	3	3	1	2	3	1	3
B47	Bleached-Mottled Eutrophic Yellow Chromosol	2	2	3	3	1	6	3	1	6
B48	Eutrophic Subnatric Yellow Sodosol	2	2	3	4	1	6	3	1	6
B49	Bleached-Sodic Eutrophic Red Chromosol	3	2	3	3	1	6	3	1	6
B50	Haplic Eutrophic Brown Dermosol	3	3	1	5	1	1	3	1	5
B51	Bleached-Sodic Eutrophic Brown Dermosol	3	2	4	3	1	6	3	1	6
B52	Haplic Eutrophic Grey Dermosol	3	3	1	5	1	1	3	1	5
B53	Haplic Eutrophic Red Chromosol	3	2	3	3	1	2	4	1	4
B54	Bleached-Mottled Eutrophic Yellow Kandosol	3	5	1	5	1	6	3	1	6
B55	Haplic Eutrophic Red Kandosol	3	2	3	3	1	3	3	1	3
B56	Mottled Eutrophic Grey Kandosol	3	2	4	3	1	3	3	1	4
B57	Sodic Eutrophic Black Chromosol	3	2	4	3	1	2	4	1	4
B58	Mottled-Sodic Eutrophic Brown Chromosol	3	2	4	3	1	6	3	1	6
B59	Haplic Eutrophic Red Chromosol	2	2	3	3	2	2	4	1	4

		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
Site No.	Soil Classification	Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
B60	Haplic Eutrophic Red Chromosol	3	2	3	3	1	2	4	1	4
B61	Haplic Eutrophic Brown Chromosol	3	2	3	3	1	3	4	1	4
B62	Haplic Eutrophic Black Dermosol	2	2	4	3	3	1	3	1	4
B63	Haplic Eutrophic Brown Dermosol	3	2	3	3	1	3	6	1	6
B64	Bleached-Mottled Eutrophic Brown Chromosol	3	5	1	5	1	6	3	1	6
B65	Mottled Eutrophic Red Chromosol	2	2	3	3	1	3	3	1	3
B66	Bleached-Sodic Eutrophic Red Chromosol	2	2	3	3	1	6	4	1	6
B67	Bleached-Mottled Eutrophic Red Chromosol	2	3	1	5	1	6	3	1	6
B68	Bleached-Mottled Eutrophic Brown Chromosol	2	2	3	3	1	6	3	1	6
B69	Mottled Eutrophic Red Chromosol	3	2	3	3	1	3	3	1	3
B70	Sodic Eutrophic Red Chromosol	2	2	3	3	4	2	3	1	4
B71	Bleached-Mottled Eutrophic Red Chromosol	3	3	1	5	1	6	3	1	6
B72	Bleached-Sodic Eutrophic Grey Chromosol	3	2	3	3	1	6	3	1	6
B73	Bleached-Mottled Eutrophic Yellow Chromosol	3	3	1	5	1	3	3	1	5
B74	Mottled Eutrophic Brown Chromosol	2	2	3	3	2	3	3	1	3
B75	Bleached-Mottled Eutrophic Brown Chromosol	2	2	4	3	2	3	3	1	4
B76	Bleached-Mottled Eutrophic Yellow Chromosol	3	2	3	3	1	3	3	1	3
B77	Bleached-Mottled Eutrophic Yellow Chromosol	2	2	3	3	2	3	3	1	3
B78	Bleached-Mottled Eutrophic Grey Chromosol	2	2	3	3	2	3	3	1	3
B79	Haplic Eutrophic Red Chromosol	2	2	3	3	2	3	3	1	3
B80	Haplic Eutrophic Red Chromosol	2	2	3	4	2	3	3	1	4
B86	Mottled Eutrophic Red Chromosol	2	2	3	4	2	3	3	1	4
B87	Haplic Eutrophic Brown Chromosol	2	2	4	3	1	2	4	1	4
B88	Bleached-Sodic Eutrophic Yellow Dermosol	2	2	6	1	5	6	3	1	6
B95	Haplic Eutrophic Red Dermosol	3	2	3	3	1	1	3	1	3
B119	Bleached-Sodic Eutrophic Brown Chromosol	2	2	4	3	2	3	3	1	4
B136	Eutrophic Subnatric Yellow Sodosol	3	5	1	5	1	6	3	1	6

		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
Site No.	Soil Classification	Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
B137	Bleached-Sodic Eutrophic Grey Dermosol	2	2	4	3	1	6	3	1	6
B138	Eutrophic Subnatric Grey Sodosol	3	2	6	3	4	6	3	1	6
B144	Mottled Eutrophic Red Chromosol	3	2	4	3	1	3	3	1	4
B145	Haplic Eutrophic Red Chromosol	2	2	3	3	1	2	3	1	3
B146	Sodic Eutrophic Red Chromosol	2	2	3	3	1	2	3	1	3
B147	N/A	2	2	-	-	-	6	-	1	6
B148	Haplic Eutrophic Red Chromosol	3	2	3	3	1	2	3	1	3
B149	Haplic Eutrophic Red Dermosol	3	2	3	3	1	2	3	1	3
B150	Haplic Eutrophic Red Dermosol	3	2	3	3	1	2	3	1	3
B151	Haplic Eutrophic Red Dermosol	2	2	3	2	1	2	4	1	4
B152	Haplic Eutrophic Red Chromosol	2	2	4	3	1	2	4	1	4
B153	Haplic Eutrophic Red Chromosol	3	2	3	3	1	3	3	1	3
B154	Mottled Eutrophic Red Kurosol	3	5	1	5	1	3	3	1	5
B155	Eutrophic Mottled-Subnatric Brown Sodosol	2	5	1	5	1	6	3	1	6
B156	Eutrophic Mottled-Subnatric Brown Sodosol	2	2	4	3	5	6	3	1	6
B157	N/A	2	-	-	-	-	-	6	1	6
B158	Haplic Eutrophic Red Dermosol	2	2	4	3	2	2	3	1	4
B159	Haplic Eutrophic Brown Dermosol	3	3	1	5	1	2	4	1	5
B160	Bleached-Mottled Eutrophic Brown Dermosol	3	2	4	3	1	6	3	1	6
B161	Eutrophic Mottled-Subnatric Yellow Sodosol	3	2	3	3	1	6	3	1	6
B162	Mottled Eutrophic Yellow Chromosol	3	2	3	3	1	3	3	1	3
B163	Eutrophic Mottled-Subnatric Brown Sodosol	3	2	4	3	1	6	3	1	6
B164	Bleached-Mottled Eutrophic Brown Dermosol	2	2	4	3	1	6	3	1	6
B165	Haplic Eutrophic Brown Dermosol	3	5	1	5	1	3	3	1	5
B166	Haplic Eutrophic Red Chromosol	3	2	4	3	1	2	3	1	4
B167	Haplic Eutrophic Red Dermosol	3	2	3	3	1	2	3	1	3
B168	Mottled Eutrophic Red Dermosol	3	2	3	3	1	2	3	1	3

		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
Site No.	Soil Classification	Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
B169	Sodic Eutrophic Red Chromosol	2	2	3	3	1	2	4	1	4
B170	Haplic Eutrophic Red Chromosol	3	3	1	5	1	3	3	1	5
B171	Mottled Eutrophic Red Chromosol	3	2	3	3	1	3	4	1	3
B172	Eutrophic Subnatric Red Sodosol	2	2	3	3	1	3	4	1	4
B173	Mottled Eutrophic Red Dermosol	3	2	4	3	1	3	3	1	4
B174	Haplic Eutrophic Red Chromosol	3	2	3	3	1	2	3	1	3
B175	Mottled Eutrophic Brown Chromosol	2	2	3	3	1	6	3	1	6
B176	Haplic Eutrophic Red Chromosol	2	3	1	3	1	2	3	1	3
B177	Haplic Eutrophic Brown Kandosol	3	2	3	3	1	2	3	1	3
B178	Red Chromosol	2	2	3	3	1	2	3	1	3
B179	Brown Chromosol	2	5	1	5	1	2	3	1	5
B180	Red Chromosol	2	5	1	5	1	3	3	1	5
B181	Brown Dermosol	2	2	3	3	3	2	3	1	3
B182	Brown Dermosol	2	5	1	5	3	2	3	1	5
B183	Brown Dermosol	2	3	1	5	3	3	3	1	5
B184	Brown Dermosol	3	5	1	5	2	2	3	1	5
B185	Red Dermosol	3	2	3	3	1	3	4	1	4
B186	Red Chromosol	3	5	1	5	1	3	3	1	5
B187	Red Chromosol	2	5	1	5	1	3	4	1	5
B188	Brown Chromosol	3	2	3	3	1	2	3	1	3
B189	Red Chromosol	3	5	1	5	1	2	3	1	5
B190	Red Chromosol	3	5	1	5	1	3	3	1	5
B191	Red Chromosol	3	2	3	3	1	3	3	1	3
B192	Red Chromosol	3	2	3	3	1	3	4	1	4
B193	Red Chromosol	2	2	3	3	1	3	4	1	4
B194	Red Chromosol	2	3	1	5	1	3	3	1	5
B195	Brown Chromosol	2	5	1	5	1	3	3	1	5

		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
Site No.	Soil Classification	Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
B196	Brown Chromosol	2	2	3	3	1	2	4	1	4
B197	Yellow Chromosol	3	2	3	3	1	3	4	1	4
B198	Red Chromosol	3	5	1	5	1	3	3	1	5
B199	Brown Chromosol	3	3	1	5	1	2	4	1	5
B200	Red Chromosol	3	2	3	3	1	6	4	1	6
B201	Yellow Chromosol	3	2	4	3	1	3	3	1	4
B202	Red Chromosol	3	2	3	3	1	3	3	1	3
B203	Yellow Chromosol	3	2	3	3	1	3	3	1	3
B204	Brown Chromosol	3	2	3	3	1	3	3	1	3
B205	Brown Chromosol	3	2	3	3	1	3	3	1	3
B206	Yellow Chromosol	3	2	3	4	1	3	3	1	4
B207	Yellow Chromosol	3	2	3	3	1	3	3	1	3
B208	Brown Dermosol	3	2	3	3	1	2	4	1	4
B209	Red Chromosol	3	2	4	3	1	2	3	1	4
E6	Haplic Eutrophic Brown Chromosol	6	2	3	3	1	2	3	1	6
E7	Haplic Eutrophic Brown Kandosol	7	3	1	5	1	2	3	1	7
E8	Haplic Eutrophic Brown Kandosol	6	3	1	5	1	2	3	1	6



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Verified Land and Soil Capability

FIGURE 1A

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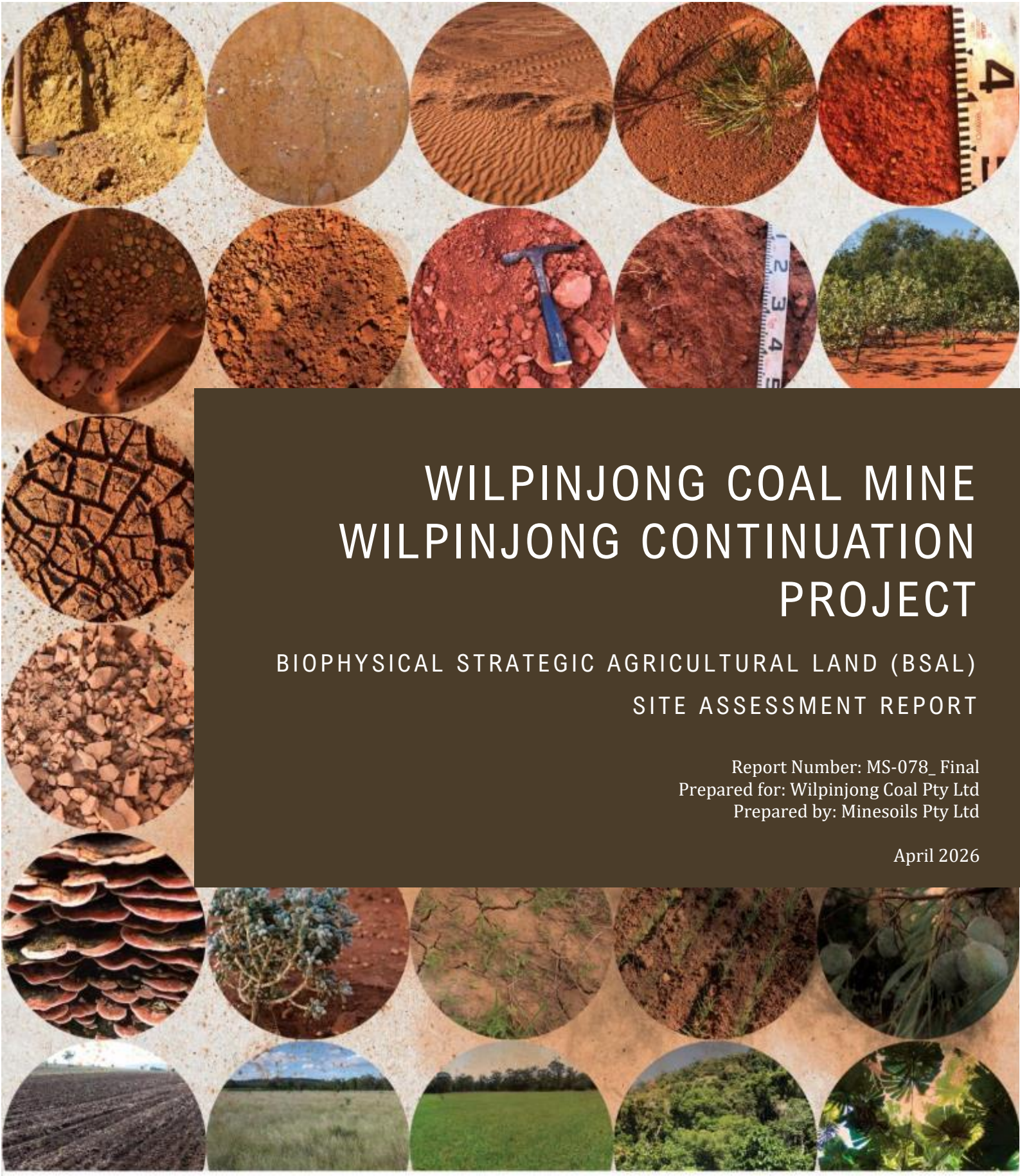
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APPENDIX D: WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT: BIOPHYSICAL STRATEGIC AGRICULTURAL LAND (BSAL) SITE ASSESSMENT REPORT (MINESOILS, 2026C)



WILPINJONG COAL MINE WILPINJONG CONTINUATION PROJECT

BIOPHYSICAL STRATEGIC AGRICULTURAL LAND (BSAL) SITE ASSESSMENT REPORT

Report Number: MS-078_ Final
Prepared for: Wilpinjong Coal Pty Ltd
Prepared by: Minesoils Pty Ltd

April 2026

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DOCUMENT CONTROL

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MS-078_BSAL_Draft 1	10 October 2025	Matt Hemingway	Clayton Richards
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MS-078_BSAL_Draft 3	5 December 2025	Matt Hemingway	Clayton Richards
MS-078_BSAL_Draft 4	10 March 2026	Matt Hemingway	Clayton Richards
MS-078_BSAL_Final	18 March 2026	Matt Hemingway	Clayton Richards

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1. INTRODUCTION

1.1. OVERVIEW

Minesoils was engaged by Wilpinjong Coal Pty Ltd (WCPL) to undertake a biophysical strategic agricultural land (BSAL) assessment in support of an application for a Gateway Certificate (Gateway Application) for the potential extension of mining activities at the Wilpinjong Coal Mine, which would be located within the Gateway Application Area (i.e. the land on which a mining lease is required to be issued to enable the development to be carried out).

The Wilpinjong Coal Mine is approximately 40 kilometres (km) north-east of Mudgee, near the village of Wollar, within the Mid-Western Regional Local Government Area, in central New South Wales (NSW) (refer **Figure 1**). WCPL operates the Wilpinjong Coal Mine under Development Consent (SSD-6764), granted in April 2017 for the Wilpinjong Extension Project, that allows for continuation of operations to 31 December 2033 at rates of up to 16 million tonnes per annum of run-of-mine coal within Mining Lease (ML) 1573, ML 1779, ML 1795 and ML 1846. A Site Verification Certificate (SVC) was previously issued for the Wilpinjong Extension Project on 17 October 2014, which covered previous parts of Exploration Licence (EL) 6169 and EL 7091 (now ML 1779, ML 1795 and ML 1846), with a subsequent SVC issued on 6 August 2024 covering parts of EL 9399 and EL 6169.

The Gateway Application Area subject to this assessment covers 667 hectares (ha) within additional areas of EL 9399 (refer **Figure 2**).

1.2. ASSESSMENT OBJECTIVES AND SCOPE

The potential extension to mining activities would be located within the Gateway Application Area and would require a new ML, triggering Chapter 2 of the *State Environmental Planning Policy (Resources and Energy) 2021* (the Resources and Energy SEPP). The Resources and Energy SEPP requires certain types of developments, such as new MLs to verify whether the proposed site is on BSAL.

BSAL is land with a combination of natural resources highly suitable for agriculture. These lands have suitable landforms, soil and water resources that are naturally capable of sustaining high levels of productivity and require minimal management practices to maintain this high quality. There is no regionally mapped BSAL within the Gateway Application Area (refer **Figure 1**).

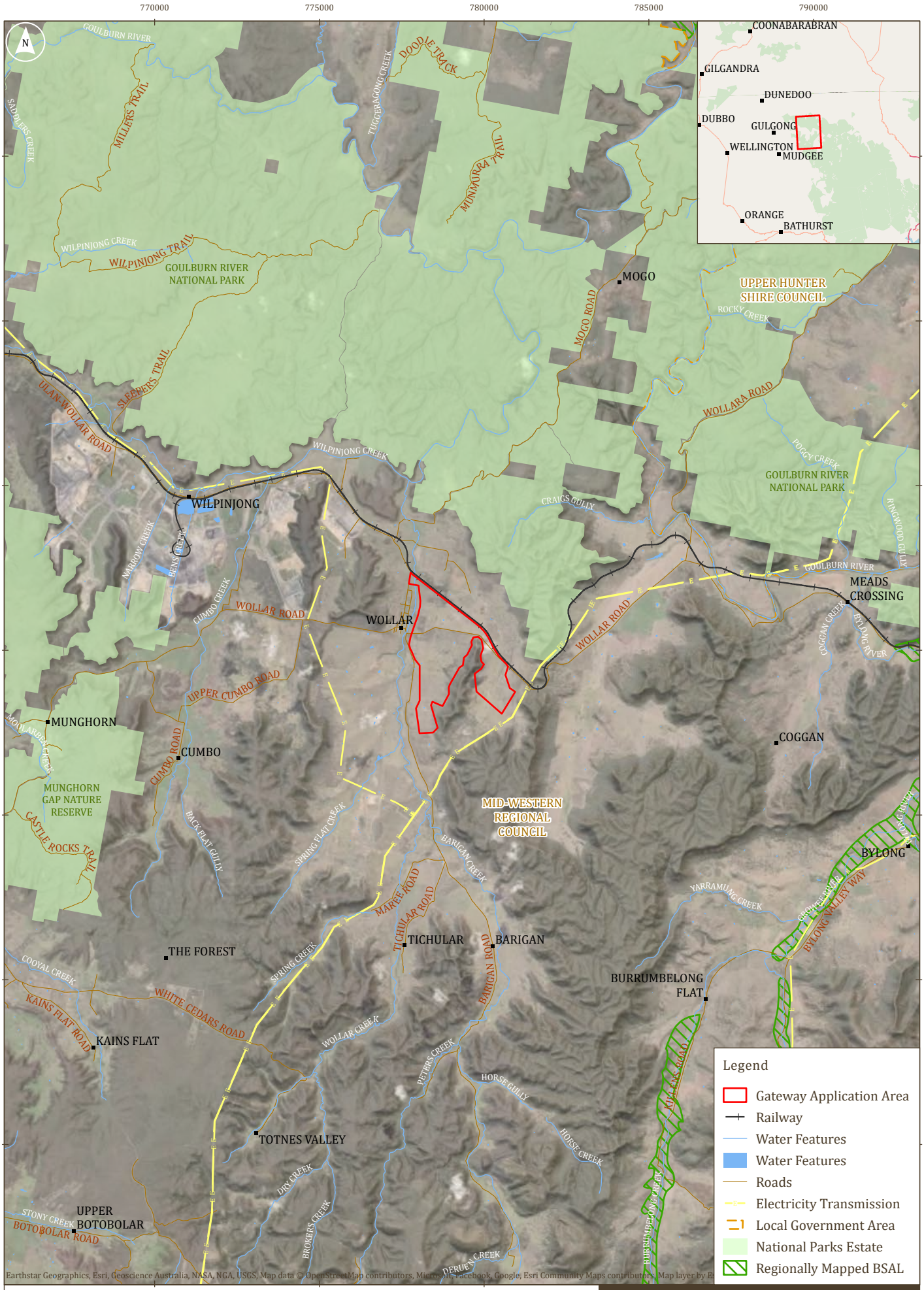
The objective of this report is to define and assess the Gateway Application Area to verify the presence and extent of BSAL or non-BSAL. The assessment was undertaken in accordance with the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (Office of Environment & Heritage [OEH] and Department of Primary Industries - Office of Agricultural Sustainability and Food Security [DPIOAS&FS], 2013); hereafter referred to as the Interim Protocol.

1.3. GATEWAY APPLICATION AREA AND BSAL ASSESSMENT AREA

The Gateway Application Area is defined as the land associated with the potential extension of mining activities at the Wilpinjong Coal Mine, and covers an area of 667 ha. In accordance with the Interim Protocol, a 100 metre (m) buffer was added to the Gateway Application Area (refer **Figure 2**) to form the BSAL Assessment Area. The application of this 100 m buffer results in an initial BSAL Assessment Area of 849 ha. Mining activities that require an ML would not be undertaken outside of the Gateway Application Area for the potential extension at the Wilpinjong Coal Mine and therefore the 100 m buffer is for assessment purposes only. The Interim Protocol relevantly states:

> *Under clause 17A(2) of the 2013 Mining SEPP amendment, mining or petroleum development, as defined for the purposes of the Gateway process, does not include development on land outside the area of a proposed mining or petroleum lease. Therefore, any components of the proposal, for example linear infrastructure such as roads and pipelines, outside of the proposed lease areas are not subject to either the site verification or Gateway processes.*

To further refine the BSAL Assessment Area, a desktop slope analysis was conducted as per the Interim Protocol criteria using site-specific Light Detection and Ranging (LiDAR) data. The slope analysis confirmed that 126 ha of the BSAL Assessment Area is greater than (>) 10% slope or less than (<) 20 ha contiguous area confined by slope, which verifies these areas as non-BSAL and reduces the extent of the BSAL Assessment Area (refer **Figure 2**). As a result, the BSAL Assessment Area for detailed site investigation was determined to be 723 ha.



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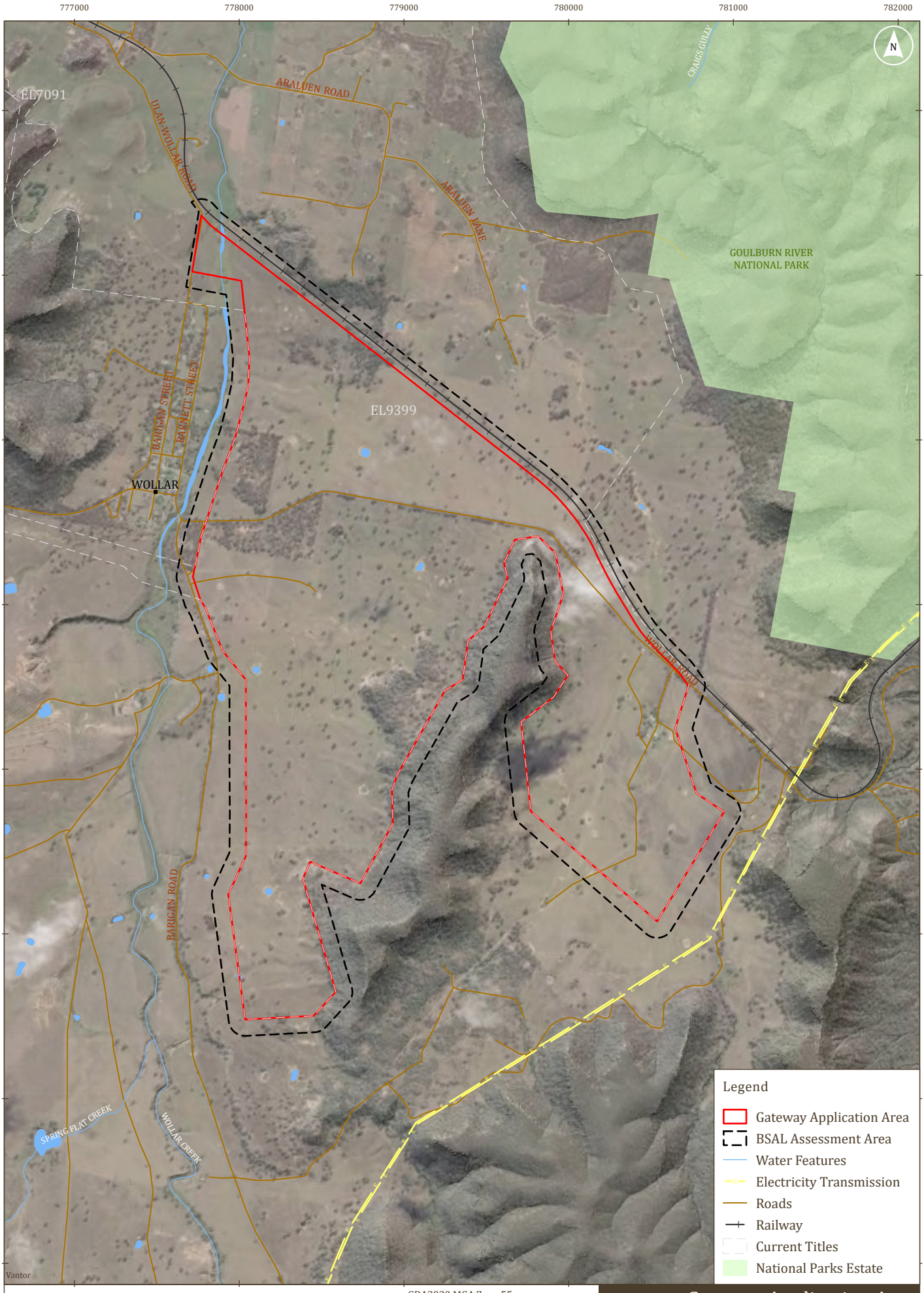
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Regional Context

FIGURE 1

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Gateway Application Area and BSAL Assessment Area

FIGURE 2

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2. EXISTING ENVIRONMENT

2.1. SITE DESCRIPTION

The BSAL Assessment Area primarily consists of moderately undulating lower and mid slopes, with sections of steeper slope enclosing an elevated plateau that is excluded from the Gateway Application Area. Areas of very gently undulating to level open drainage flats associated with Wollar Creek occur in the north west and sporadically along the western boundary. Elevations range from approximately 501 metres Australian Height Datum (m AHD) on slopes rising to escarpment in the central area, falling in a general north west direction to approximately 350 m AHD on lower sections of drainage flats (refer **Figure 3**).

The majority of the BSAL Assessment Area has been previously cleared and used historically for light grazing on native pastures, whilst select paddocks and areas of steeper slope remain moderately to heavily timbered (refer **Figure 2**).

The State's regional mapping of BSAL does not identify any BSAL or critical industry clusters in the vicinity of the BSAL Assessment Area, the closest mapped BSAL is located approximately 9 km to the south east of the BSAL Assessment Area (refer **Figure 1**).

2.2. REGIONAL CONTEXT

2.2.1. CLIMATE

The BSAL Assessment Area is located in the Central West region, and is subject to a temperate climate with hot summers and cool winters. The western extent of the region generally experiences lower annual rainfall than the eastern extent, within which the BSAL Assessment Area is located.

The closest Bureau of Meteorology (BOM) weather station to the BSAL Assessment Area is at Merriwa (Roscommon) (Station No. 061287), approximately 30 km to the north-east (BOM, 2025). The weather station contains climate and weather data from 1969 to present. The annual average rainfall is 597.8 millimetres (mm), over an average of 62.4 rainy days, with the average lowest rainfall in the month of August and the highest in the month of January.

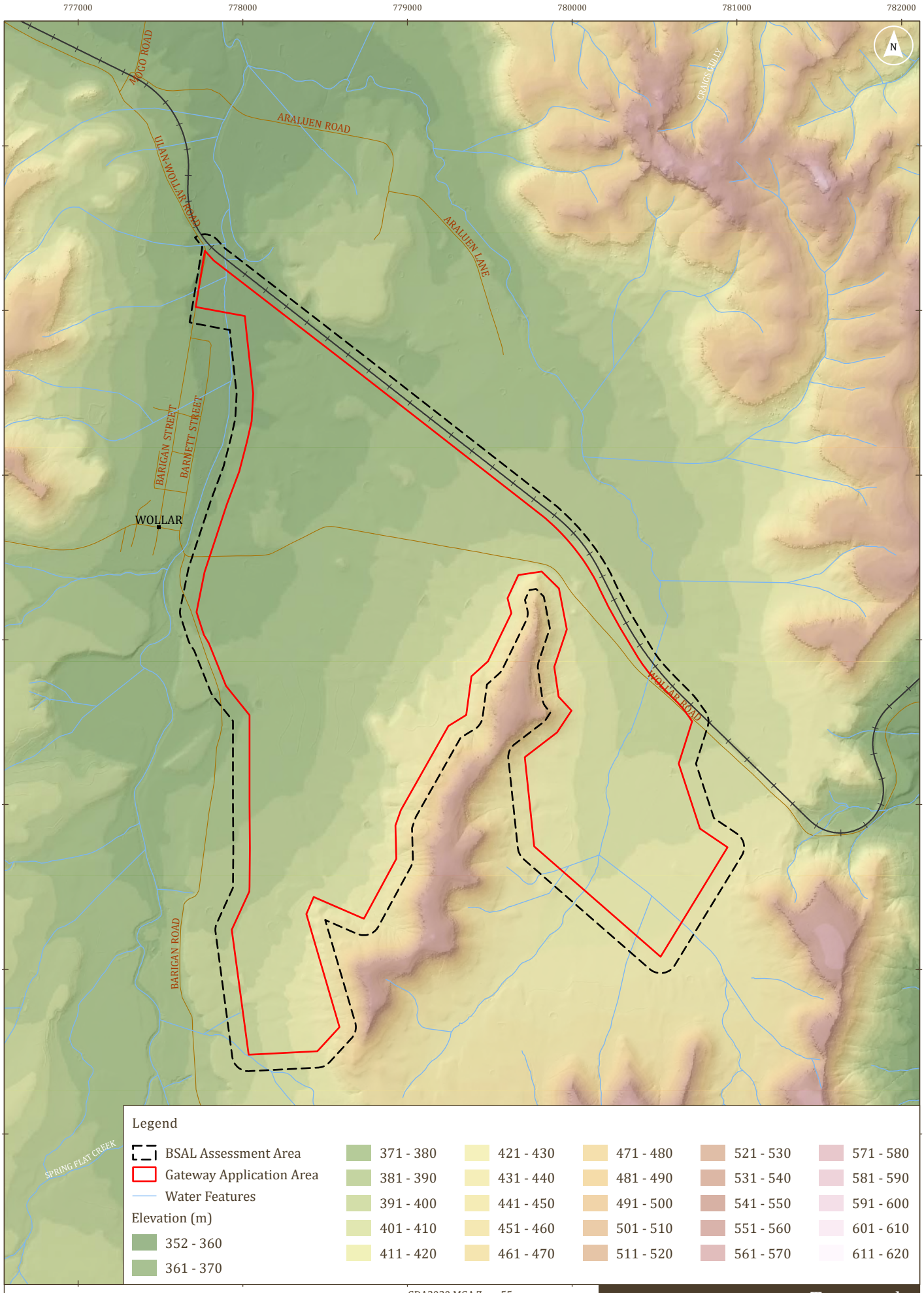
The annual average maximum temperature recorded at the site is 24.0 degrees Celsius (°C) and the annual average minimum temperature is 9.2°C. The highest average maximum temperature of 31.4°C is recorded in January, while the lowest average maximum temperature of 16.2°C is recorded in July (BOM, 2025).

2.2.2. LAND USE

Dominant land uses in the locality include coal mining and beef cattle grazing on native pastures. In addition, the Goulburn River National Park occupies a significant portion of the region to the north and east of the BSAL Assessment Area. Other lower areas previously subject to clearing have been historically used for light grazing on native pastures with some sporadic cropping activity, whilst steeper, higher areas remain heavily timbered.

2.2.3. GEOLOGY

The geology of the BSAL Assessment Area generally consists of Permian Illawarra Coal Measures (Pil) characterised by shale, quartz-lithic sandstone, conglomerate, chert, sporadically carbonaceous mudstone, coal and torbanite seams. In addition, there are very minor occurrences of ungrouped Mesozoic igneous units phonolite (MZui_h), characterised by fine- to medium-granited phonolite, trachyte, and syenite, as well as quartz-lithic to quartzose sandstone, conglomerate, mudstone, siltstone and rare coal of the Narrabeen Group (Tna) (refer **Figure 4**) (Department of Mineral Resources, 2002).



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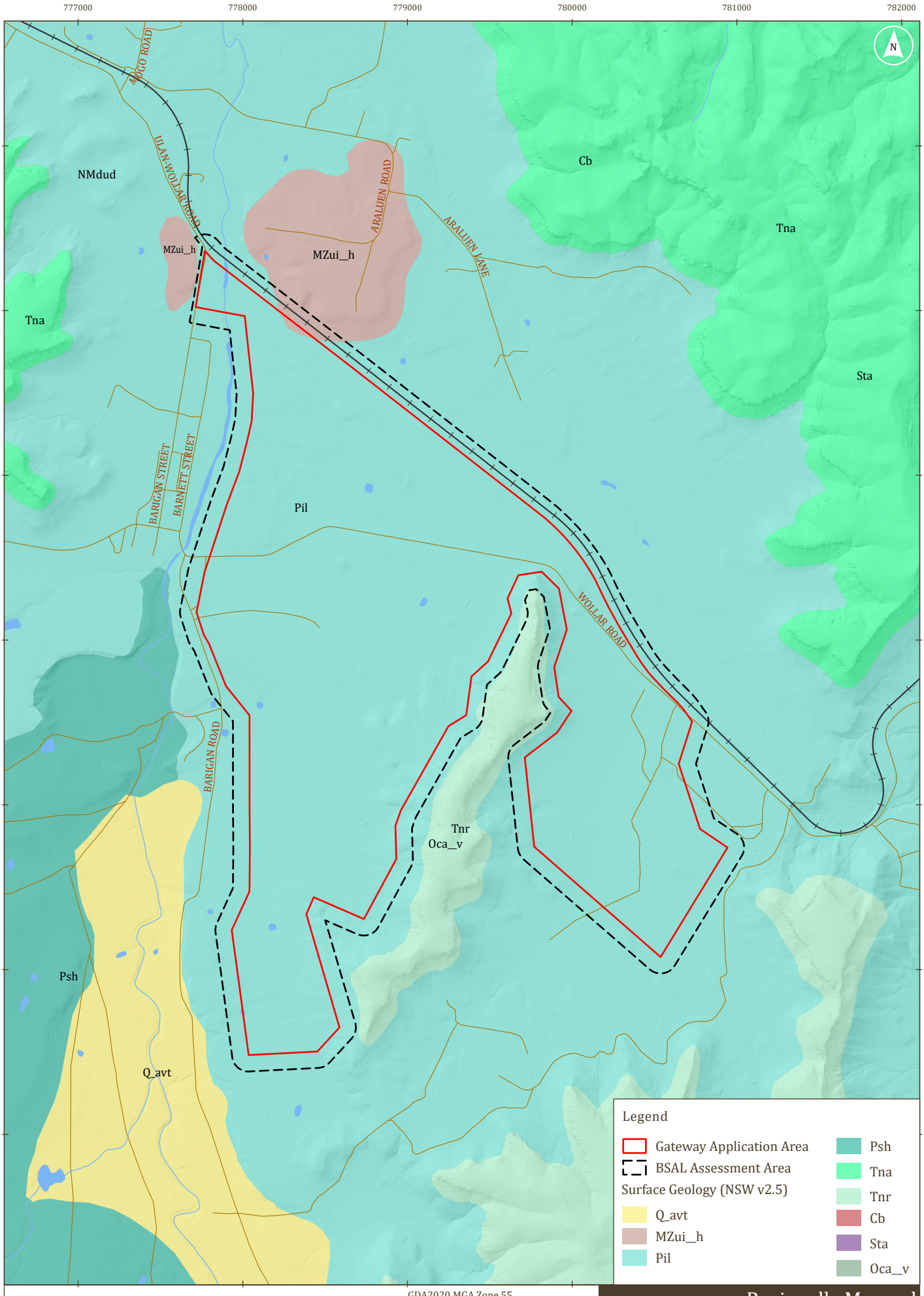
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Topography

FIGURE 3

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2.2.4.SOIL LANDSCAPES

Soil landscape units for the BSAL Assessment Area are mapped by the OEH (2018) which compiled 40 published soil landscape maps that cover central and eastern NSW, based on standard 1:100,000 and 1:250,000 topographic sheets. The mapping provides an inventory of soil and landscape properties of the area and identifies major soil and landscape qualities and constraints. It integrates soil and topographic features into single units with relatively uniform land management requirements. In the associated reports, soils are described in terms of soil materials in addition to the Australian Soil Classification (ASC), the Great Soil Groups, and the Northcote system. The soil landscape units mapped within the BSAL Assessment Area are shown on **Figure 5** and described below.

Ulan Soil Landscape

Landscapes consist of gently undulating plains to undulating rises on Permian Illawarra Coal Measures in the western part of the Hunter Region. Slopes 2 - 5%, local relief <30 m, elevation 350 - 550 m. Extensively cleared.

Soils are dominated by deep (100 - <150 centimetres [cm]), imperfectly to poorly drained Bleached / Sodic Brown and Yellow Natric Kurosols (Soloths) and shallow to moderately deep (25 - <100 cm), well-drained Red and Yellow Kurosols (Red Podzolic Soils and Yellow Podzolic Soils).

Qualities and limitations include localised discharge zone, localised salinity hazard, widespread gully erosion hazard, widespread sheet erosion hazard, widespread high run-on, localised poor drainage, and widespread seasonal waterlogging.

Ulan variant A Soil Landscape

Landscapes consist of gently undulating to undulating rises on Permian Illawarra Coal Measures and minor areas of Singleton Coal Measures in the western part of the Hunter Central Rivers catchment. Slopes <10%, local relief 10 – 30 m, elevation ranges 350 - 450 m. Extensively cleared woodland.

Soils are dominated by shallow to moderately deep (25 - <100 cm), well-drained, minimal Red and Brown Kurosols (Red Podzolic Soils) and very shallow (<25 cm), rapidly drained Leptic Tenosols (Earthy Sands).

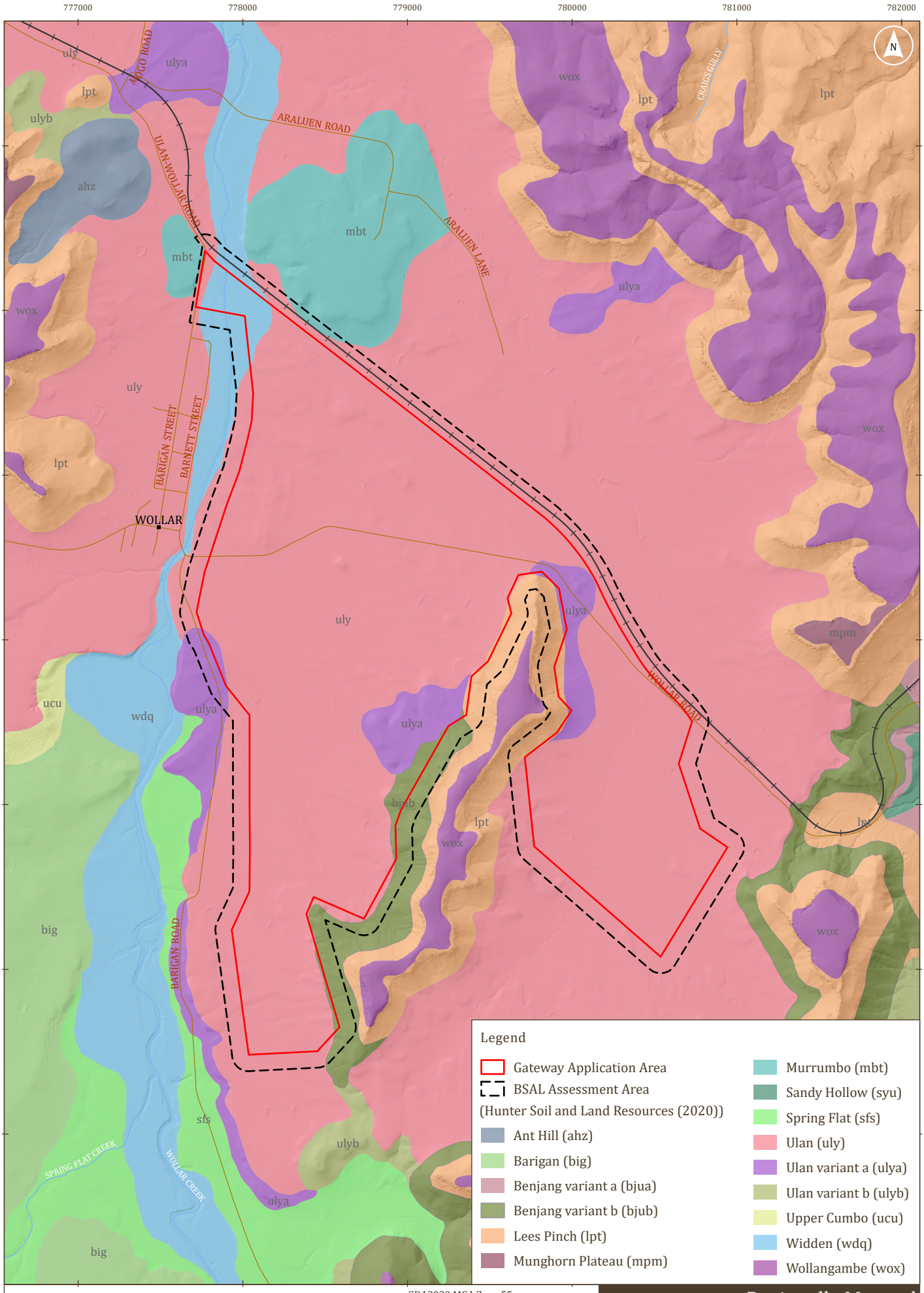
Qualities and limitations include localised shallow soils, localised poor moisture availability, localised rock outcrop hazard, localised foundation hazard, widespread recharge zone, widespread sheet erosion hazard, localised high run-on, and localised seasonal waterlogging.

Lees Pinch Soil Landscape

Landscapes consist of steep to precipitous hills on Triassic sandstone in the south-west of the Hunter catchment. Slopes >30%, local relief 90 - >300 m, elevation 200 - 800 m. Mostly uncleared open-forest and woodland.

Soils are dominated by very shallow to shallow (<25 - <50 cm), rapidly drained Arenic and Clastic Rudosols (Siliceous Sands) and Leptic Tenosols (Lithosols); shallow to deep (25 - <150 cm), well-drained Kandosols (Yellow Earths); and deep (100 - <150 cm), imperfectly drained Yellow Kurosols (Yellow Podzolic Soils and Soloths).

Qualities and limitations include widespread shallow soils, widespread poor moisture availability, widespread non-cohesive soils, widespread steep slopes, widespread rock outcrop hazard, widespread rockfall hazard, widespread mass movement hazard, widespread foundation hazard, widespread recharge zone, widespread sheet erosion hazard, localised high run-on, and localised permanent waterlogging.



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Murrumbo Soil Landscape

Landscapes consist of undulating low hills on Tertiary volcanics (microsyenite) in the west of the Hunter Region. Slopes 5 - 10%, local relief 30 - 90 m, elevation 280 - 500 m. Extensively cleared woodland.

Soils are dominated by shallow to moderately deep (25 - <100 cm), well-drained Haplic Eutrophic Red Kandosols (Red Earths) and shallow to moderately deep (25 - <100 cm), well-drained Haplic Eutrophic Red and Brown Dermosols (Chocolate Soils).

Qualities and limitations include localised shallow soils, localised dieback, widespread recharge zone, localised sheet erosion hazard, and localised high run-on.

Widden Soil Landscape

Landscapes consist of level to gently undulating plains of tributaries of the Goulburn River in the western part of the Hunter Region. Slopes <3%, local relief <10 m, elevation 100 - 540 m. Extensively cleared riparian vegetation.

Soils are moderately deep to deep (50 - <150 cm), well-drained Stratic Rudosols (Alluvial Soils); very deep (150 - 500 cm), moderately well-drained Brown Chromosols (Non-calcic Brown Soils); very deep (150 - 500 cm), moderately well-drained Brown Kandosols (Yellow Earths); deep (100 - <150 cm), moderately well-drained Brown and Black Dermosols (Chernozems); moderately deep to very deep (50 - 500 cm), poorly drained Oxyaquic Hydrosols (Acid Peats and Alluvial Soils); and very deep (150 - 500 cm), imperfectly drained Brown Sodosols (Solodic Soils).

Qualities and limitations include widespread complex soils, localised non-cohesive soils, widespread foundation hazard, widespread productive arable land, widespread recharge zone, localised discharge zone, localised streambank erosion hazard, widespread high run-on, localised poor drainage, localised permanently high watertables, localised permanent waterlogging, localised seasonal waterlogging, and widespread flood hazard.

Benjang Variant B Soil Landscape

Landscapes consist of steep to very steep flat-topped hills comprising foothills below Narrabeen Sandstone escarpments on undifferentiated Singleton Coal Measures in the central west of the Hunter Region. Slopes >30%, local relief 30 - 150 m, elevation 100 - 750 m. Largely uncleared woodland.

Soils are shallow to moderately deep (25 - <100 cm), gravelly stony Leptic Tenosols (Lithosols); and shallow to moderately deep (25 - <100 cm) Brown and Red Chromosols (Non-calcic Brown Soils and Red-brown Earths).

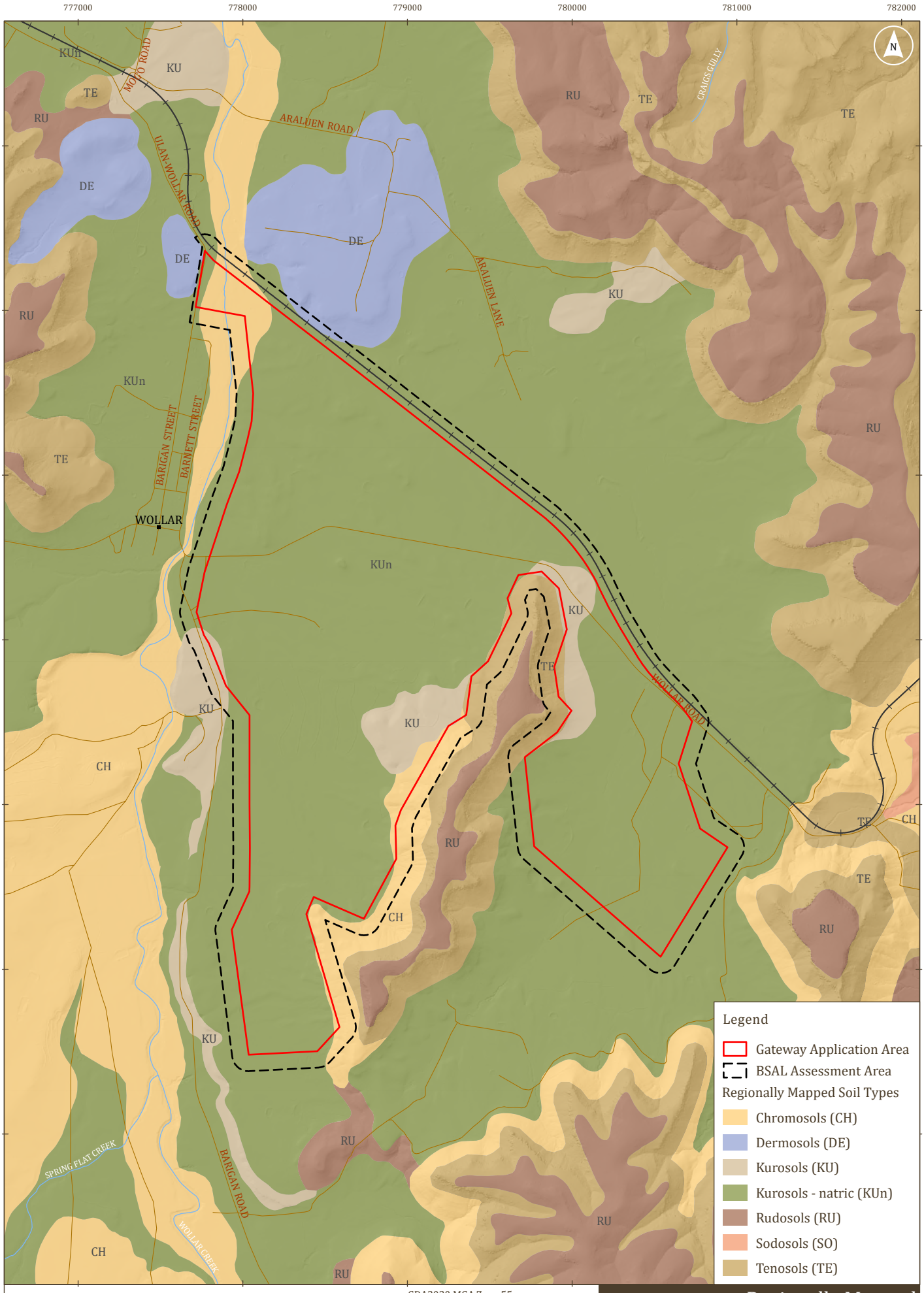
Qualities and limitations include widespread shallow soils, localised poor moisture availability, widespread steep slopes, widespread rock outcrop hazard, widespread rockfall hazard, widespread mass movement hazard, widespread foundation hazard, widespread recharge zone, widespread gully erosion hazard, widespread sheet erosion hazard, and localised high run-on.

2.2.5.REGIONALLY MAPPED SOIL TYPES

The NSW regional soil mapping (Department of Planning and Environment [DPE], 2023) indicates the dominant soil types within the BSAL Assessment Area are Kurosols, Natric Kurosols, Chromosols, Dermosols and Tenosols, as per the ASC (Isbell, 2021) (refer **Figure 6**).

Kurosols are soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is <0.2 m thick) is strongly acid.

Natric Kurosols are soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is <0.2 m thick) is strongly acid and sodic.


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CRAIGS GULLY
BARIGAN STREET
BARNETT STREET
WOLLAR
WOLLAR ROAD
BARIGAN ROAD
SPRING FLAT CREEK
WOLLAR CREEK
KUn
KU
TE
RU
DE
CH
Legend
Gateway Application Area
BSAL Assessment Area
Regionally Mapped Soil Types
Chromosols (CH)
Dermosols (DE)
Kurosols (KU)
Kurosols - natric (KUn)
Rudosols (RU)
Sodosols (SO)
Tenosols (TE)
GDA2020 MGA Zone 55
0 125 250 500 750
Meters
Scale: 1:30,000 @ A4
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Regionally Mapped Soil Types
FIGURE 6
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Chromosols are defined as soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is <0.2 m thick) is not sodic and not strongly acid. Soils with strongly subplastic upper B2 horizons are also included even if they are sodic.

Dermosols are soils other than Vertosols, Hydrosols, Calcarosols and Ferrosols which:

1. Have B2 horizons that have grade of pedality greater than weak throughout the major part of the horizon; and
2. Do not have clear or abrupt textural B horizon.

Tenosols are soils that do not fit the requirements of any other soil orders and generally with one or more of the following:

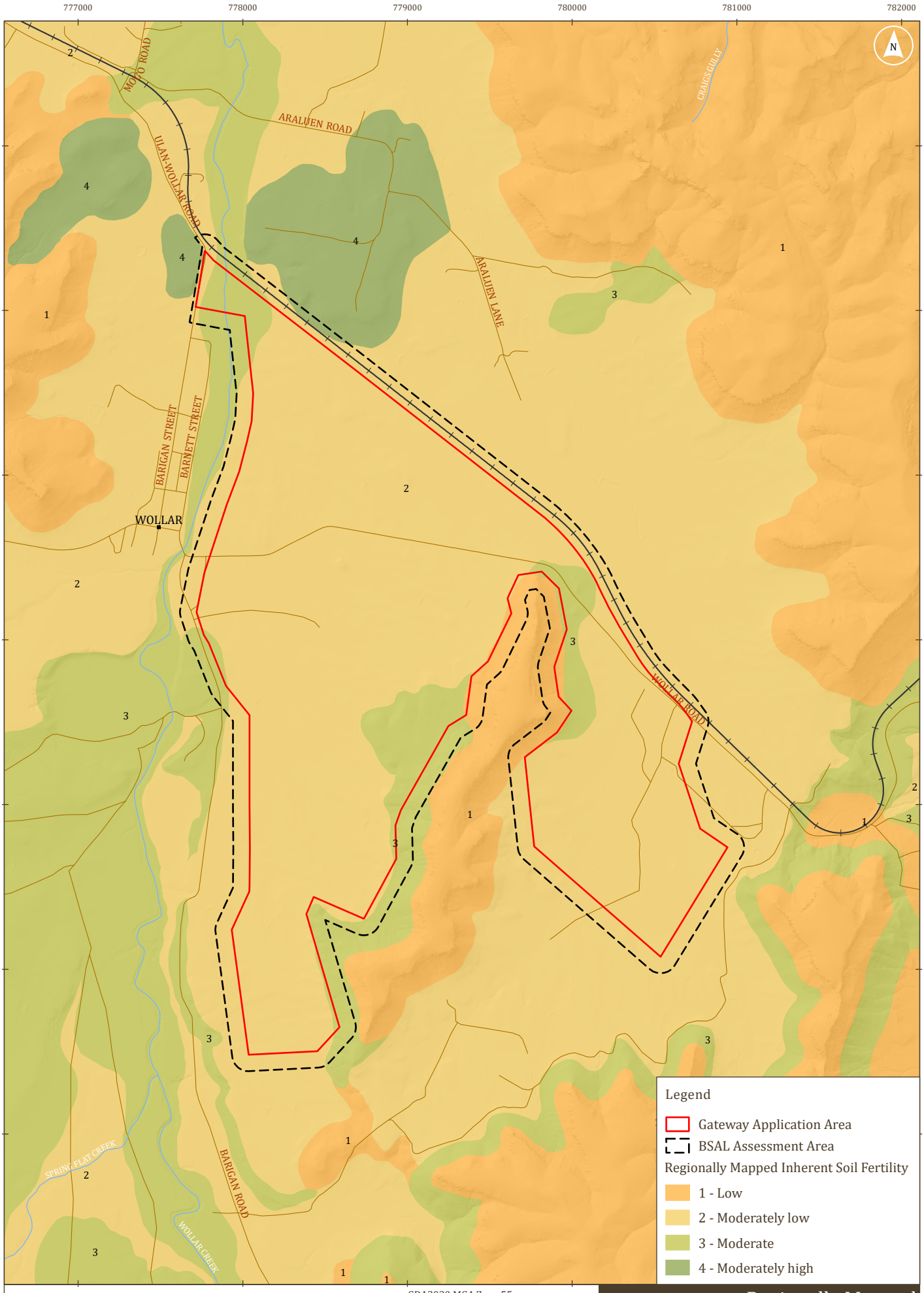
1. A peaty horizon.
2. A humose, melacic or melanic horizon, or conspicuously bleached A2 horizon, which overlies a calcrete pan, hard unweathered rock or other hard materials; or partially weathered or decomposed rock or saprolite, or unconsolidated mineral materials.
3. A horizon which meets all the conditions for a peaty, humose, melacic or melanic horizon except the depth requirement, and directly overlie a calcrete pan, hard unweathered rock or other hard materials; or partially weathered or decomposed rock or saprolite, or unconsolidated mineral materials.
4. A1 horizons which have more than a weak development of structure and directly overlie a calcrete pan, hard unweathered rock or other hard materials; or partially weathered or decomposed rock or saprolite, or unconsolidated mineral materials.
5. An A2 horizon which overlies a calcrete pan, hard unweathered rock or other hard materials; or partially weathered or decomposed rock or saprolite, or unconsolidated mineral materials.
6. B2 horizon with 15% clay (SL) or less, or a transitional horizon (C/B) occurring in fissures in the parent rock or saprolite which contains between 10 and 50% of B horizon material (including pedogenic carbonate).
7. A ferric or bauxitic horizon >0.2 m thick.
8. A calcareous horizon >0.2 m thick.

2.2.6.INHERENT FERTILITY

NSW regional soil mapping (DPE, 2023) provides an estimation of the inherent fertility of soils in NSW. It uses the best available soils and natural resource mapping developed for land and soil capability (LSC) dataset. The mapping describes soil fertility in NSW according to a five-class system: Low (1), Moderately low (2), Moderate (3), Moderately high (4), High (5).

Soils with 'Low' fertility, due to their poor physical and/or chemical status, only support limited plant growth. Soils with 'Moderately Low' fertility can generally only support plants suited to grazing; large inputs of fertiliser are required to make the soil suitable for arable purposes. Soils with 'Moderate' fertility usually require fertilisers and/or have some physical restrictions for arable use. Soils with 'Moderately High' fertility have a high level of fertility in their virgin state which is significantly reduced after a few years of cultivation (Murphy *et al*., 2007).

The BSAL Assessment Area is dominated by soils with Low fertility (1) and Moderately low fertility (2). Moderate fertility (3), and Moderately high fertility (4) soils do occur within the BSAL Assessment Area, but to a far less extent (refer **Figure 7**).



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Regionally Mapped Inherent Soil Fertility

FIGURE 7

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2.2.7.LAND AND SOIL CAPABILITY

Land capability, as detailed in *The land and soil capability assessment scheme; Second approximation* (OEH, 2012) (referred to as the LSC Scheme), is the inherent physical capacity of the land to sustain a range of land uses and management practices in the long-term without degradation to soil, land, air and water resources. Failure to manage land in accordance with its capability risks degradation of resources both on- and off-site, leading to a decline in natural ecosystem values, agricultural productivity, and infrastructure functionality.

The scheme uses the biophysical features of the land and soil to derive detailed rating tables for a range of land and soil hazards. The scheme consists of eight classes, which classify the land based on the severity of long-term limitations. The LSC classes are described in **Table 1** and their definition has been based on two considerations:

- The biophysical features of the land to derive the LSC classes associated with various hazards.
- The management of the hazards including the level of inputs, expertise and investment required to manage the land sustainably.

The biophysical features of the land that are associated with various hazards are broadly soil, climate and landform, specifically noted as slope, landform position, acidity, salinity, drainage, rockiness and climate. The eight hazards associated with these biophysical features that are assessed by the LSC Scheme are:

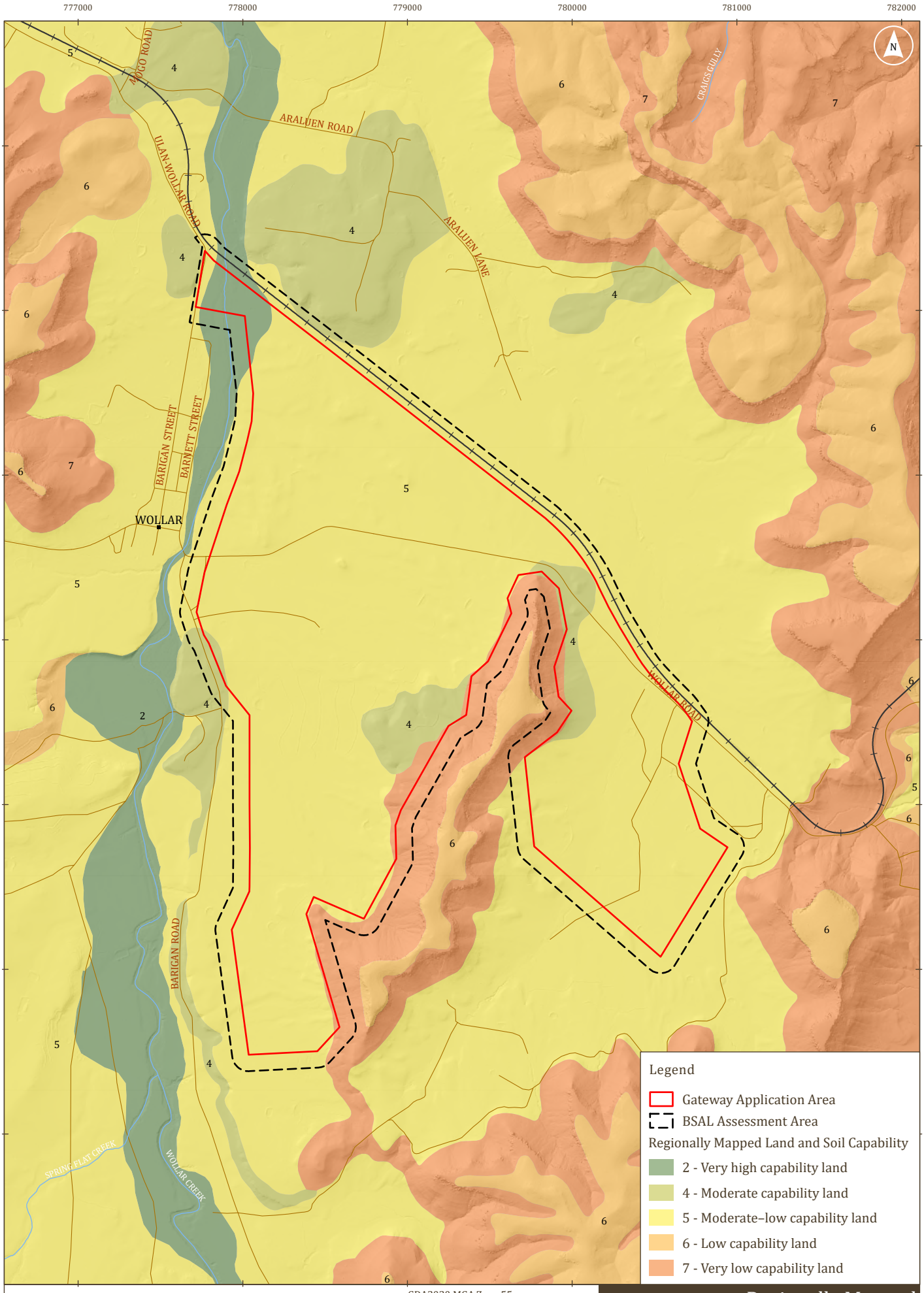
1. Water erosion.
2. Wind erosion.
3. Soil structure decline.
4. Soil acidification.
5. Salinity.
6. Water logging.
7. Shallow soils and rockiness.
8. Mass movement.

Each hazard is assessed against set criteria tables, as described in the LSC Scheme, with each hazard ranked from 1 through to 8 with the overall ranking of the land determined by its most significant limitation.

The regionally mapped LSC within the BSAL Assessment Area includes LSC class 2, 4, 5 and 7 land (refer **Figure 8**).

Table 1: Land and Soil Capability Classification

Class	Land and Soil Capability
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, nature conservation)	
1	**Extremely high capability land**: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
2	**Very high capability land**: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
3	**High capability land**: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation)	
4	**Moderate capability land**: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
5	**Moderate–low capability land**: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture)	
6	**Low capability land**: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
Land generally incapable of agricultural land use (selective forestry and nature conservation)	
7	**Very low capability land**: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
8	**Extremely low capability land**: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.



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3. BSAL ASSESSMENT PROCESS

The criteria used to map and verify the extent of BSAL under the *Strategic Regional Land Use Plan* (Department of Planning and Infrastructure, 2012) were based on three regional scale parameters:

1. Soil Fertility – based on the regional scale Draft Inherent General Fertility of NSW;
2. LSC – based on the regional scale LSC Mapping of NSW (OEH, 2012); and
3. Access to reliable water supply.

The application of the regionally mapped BSAL is to 'trigger' the Gateway Process for new development applications.

The Resources and Energy SEPP requires certain types of developments (i.e. mining or petroleum developments) to verify whether the proposed development is located on BSAL (or other strategic land). The Interim Protocol (OEH and DPI-OAS&FS, 2013) assists proponents and landholders to understand what is required to identify the existence of BSAL and outlines the technical requirements for on-site identification and mapping of BSAL.

4. METHODOLOGY

4.1. DESKTOP REVIEW

The methodology reported in the following section has been undertaken based on the Interim Protocol (OEH and DPI-OAS&FS, 2013).

Step 1: Identify the project area which will be assessed for BSAL

The assessment area should include the entire project area and include at least a 100 m buffer to take into account minor changes in design, surrounding disturbance and minor expansion. If BSAL is part of a larger contiguous mass of BSAL then the boundary of this area must also be identified.

The BSAL Assessment Area is 849 ha, inclusive of a 100 m buffer surrounding the Gateway Application Area to account for minor changes in design in accordance with the Interim Protocol, as shown in **Figure 2**. However, there would be no mining activities that would require an ML undertaken outside of the Gateway Application Area for the potential extension at the Wilpinjong Coal Mine and therefore the 100 m buffer is for assessment purposes only.

Step 2: Confirm access to a reliable water supply

BSAL lands must have access to a "reliable water supply".

Representative rainfall data for the area has been obtained from the BOM weather station located at Merriwa (Roscommon) (Station No. 061287) (BOM, 2025), approximately 30 km to the north-east of the BSAL Assessment Area and shows an average rainfall of 597.8 mm per year.

This level of rainfall is above the criteria threshold of 350 mm per year, and therefore the site has access to a reliable water supply.

Step 3: Choose the appropriate approach to map the soils information

Access to the project area will define the level of investigation that the proponent can undertake. If the proponent has access to the land then the BSAL verification requirements for on-site soils assessment as described in sections 6 and 9 should be met. If the proponent does not have access then the proponent should develop a model of soils distribution guided by sections 6 and 9 based on landscape characteristics using the information below.

…

It is important to note that for either approach, if any criteria indicate that the site is not BSAL, then no further assessment is necessary. The flow chart in Figure 2 is designed to assess the simplest criteria first, to avoid more costly assessments if the site can be easily discounted as BSAL.

Minesoils had full access to the BSAL Assessment Area for the purposes of site verification of BSAL.

Step 4: Risk assessment

The proponent should undertake a risk assessment as this will influence the density of soil sampling required as explained in Section 9.6.1. The proposed activity on parts or all of the project area may be of low risk to agriculture and so may only require a sampling density of 1:100 000. Alternatively, other areas may be at higher risk of impact and so should have a sampling density of 1:25 000.

To identify the potential for the proposed activity to impact on agricultural resources and the appropriate level of soil survey required, an evaluation of risk to agricultural resources and enterprises was undertaken. This risk assessment is taken from the *Guideline for Agricultural Impact Statements at the Exploration Stage* (Department of Trade and Investment Regional Infrastructure and Services, 2012) and is based on the probability of occurrence and the consequence of the impact, as described in the *Land Use Conflict Risk Assessment Guide* (Department of Primary Industries, 2011).

Depending on the risk, inspection densities can range from 1 site per 25 - 400 ha for low risk to 1 site per 5 - 25 ha for high risk (Gallant *et al*., 2008) (refer **Table 2**, **Table 3** and **Table 4**).

Table 2: Agricultural Impacts Risk Ranking Matrix

Consequence		Probability				
		A Almost Certain	B Likely	C Possible	D Unlikely	E Rare
1	Severe and / or permanent damage. Irreversible impacts.	A1	B1	C1	D1	E1
2	Significant and / or long-term damage. Long term management implications. Impacts difficult or impractical to reverse.	A2	B2	C2	D2	E2
3	Moderate damage and / or medium-term impact to agricultural resources or industries. Some ongoing management implications which may be expensive to implement. Minor damage or impacts over the long term.	A3	B3	C3	D3	E3
4	Minor damage and / or short-term impact to agricultural resources or industries. Can be managed as part of routine operations.	A4	B4	C4	D4	E4
5	Very minor damage and minor impact to agricultural resources or industries. Can be effectively managed as part of normal operations.	A5	B5	C5	D5	E5

Low Risk

Medium Risk

High Risk

Source: Interim Protocol (OEH and DPI-OAS&FS, 2013)

Table 3: Agricultural Impact Risk Ranking – Probability Descriptors

Level	Descriptor	Description
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur or it has happened
C	Possible	Could occur or I've heard of it happening
D	Unlikely	Could occur in some circumstances but not likely to occur
E	Rare	Practically impossible or I've never heard of it happening

Source: Interim Protocol (OEH and DPI-OAS&FS, 2013)

Table 4: Agricultural Impact Risk Ranking – Consequence Descriptors

Consequence	Description	Example of Implications
Level: 1 Severe	Severe and / or permanent damage to agricultural resources, or industries Irreversible Severe impact on the community	Long-term (e.g. 20 years) damage to soil or water resources. Long-term impacts (e.g. 20 years) on a cluster of agricultural industries or important agricultural lands.
Level: 2 Major	Significant and / or long-term impact to agricultural resources, or industries Long-term management implications Serious detrimental impact on the community	Water and / or soil impacted, possibly in the long-term (e.g. 20 years). Long-term (e.g. 20 years) displacement / serious impacts on agricultural industries.
Level: 3 Moderate	Moderate and / or medium-term impact to agricultural resources, or industries Some ongoing management implications Minor damage or impacts but over the long term.	Water and / or soil known to be affected, probably in the short – medium-term (e.g. 1 - 5 years). Management could include significant change of management needed to agricultural enterprises to continue.
Level: 4 Minor	Minor damage and / or short-term impact to agricultural resources, or industries Can be effectively managed as part of normal operations	Theoretically could affect the agricultural resource or industry in short-term, but no impacts demonstrated. Minor erosion, compaction or water quality impacts that can be mitigated. For example, dust and noise impacts in a 12-month period on extensive grazing enterprises.
Level: 5 Negligible	Very minor damage or impact to agricultural resources, or industries Can be effectively managed as part of normal operations	No measurable or identifiable impact on the agricultural resource or industry.

Source: Interim Protocol (OEH and DPI-OAS&FS, 2013)

The proposed activity would consist of open cut mining, including surface disturbance and development of associated mining infrastructure, therefore the proposed activity is considered to have the following ratings:

a. Consequence: Level 2 – Significant and/or long-term impact to agricultural resources, or industries. Long-term management implications. Serious detrimental impact on the community.

b. Probability: A – Almost Certain. Common or repeating occurrence.

The risk matrix result is A2 which is considered a high risk to agricultural activities. Therefore, a minimum inspection density of 1:25,000 is required, (minimum of one site every 25 ha) within the BSAL Assessment Area.

Site assessment of slope gradients was undertaken using LiDAR, confirming a total of 126 ha of land had slope gradients >10% or being a contiguous area of <20 ha (that is, bound by slopes >10%) (refer **Figure 2**). These areas were excluded and verified as non-BSAL based on the site-specific LiDAR data. The remainder of the BSAL Assessment Area for field validation was 723 ha. Therefore, the number of sites required is a minimum of 30 sites to verify BSAL or non-BSAL based on the soil types identified. A total of 106 detailed sites were undertaken within the BSAL Assessment Area (as well as 14 detailed sites immediately adjacent to the BSAL Assessment Area to map the contiguous extent of soil units), which is well above the minimum requirements (refer Section 4.3).

4.2. SOILS AND LANDSCAPE VERIFICATION CRITERIA

The Interim Protocol identifies ten BSAL verification criteria, with the easy to measure criteria assessed first. The BSAL verification criteria are: slope; rock outcrop; surface rock fragments; gilgai; soil fertility (based on soil type); effective rooting depth to a physical barrier; soil drainage; soil pH; salinity; and effective rooting depth to a chemical barrier. For soil to be classified as BSAL at each representative site, it must meet all the criteria outlined in the flow chart shown in **Figure 9**. If any criteria are not met, the site is not BSAL. The specific requirements for each parameter to be assessed is outlined in the Interim Protocol.

4.3. FIELDWORK

Fieldwork was undertaken by Minesoils (Clayton Richards Certified Professional Soil Scientist – Director & Principal Soil Scientist and Matt Hemingway – Associate Environmental Consultant) on 11 – 13 October 2022. Subsequent sitework investigations were undertaken on 4 – 6 August 2025, and 19 – 21 January 2026. A total of 120 detailed sites were inspected relevant to BSAL Assessment Area (including a number of sites outside the BSAL Assessment Area, which was a means to determine contiguous extent of BSAL). Of these, 106 detailed sites were within the BSAL Assessment Area, exceeding the minimum survey density requirements (refer **Figure 10**).

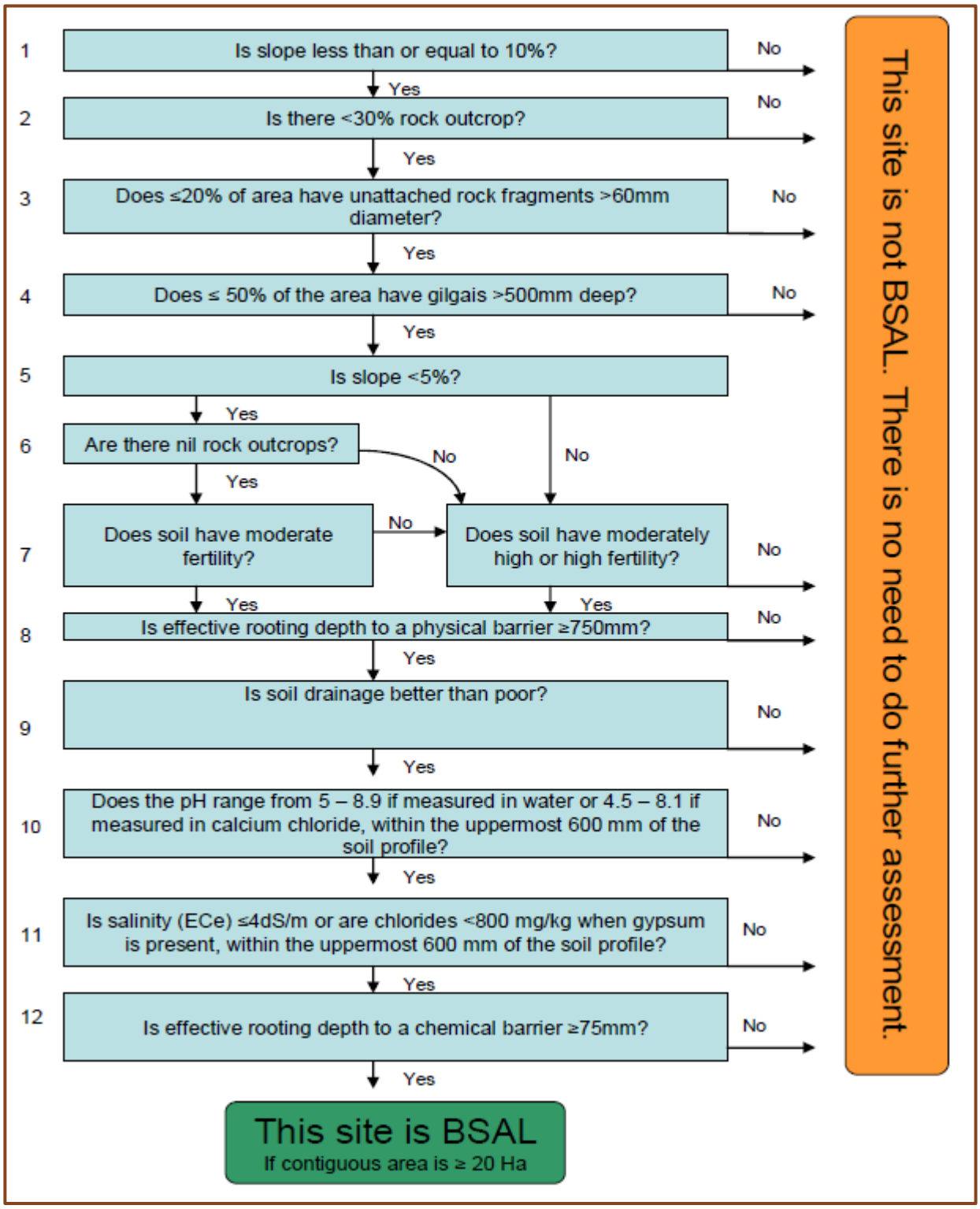
4.4. LABORATORY ANALYSIS

Soil samples were collected and assessed in the field, with samples collected for all detailed sites sent for laboratory analysis to confirm soil type and other parameters for the BSAL criteria. Analytical tests undertaken are listed in **Table 5.** Site field assessment of slope gradients was undertaken using a hand-held clinometer to confirm the LiDAR results. Other exclusion parameters were assessed in the field, including rock outcrops, surface rock and the presence of gilgai. These were considered exclusion sites and no further parameters were recorded.

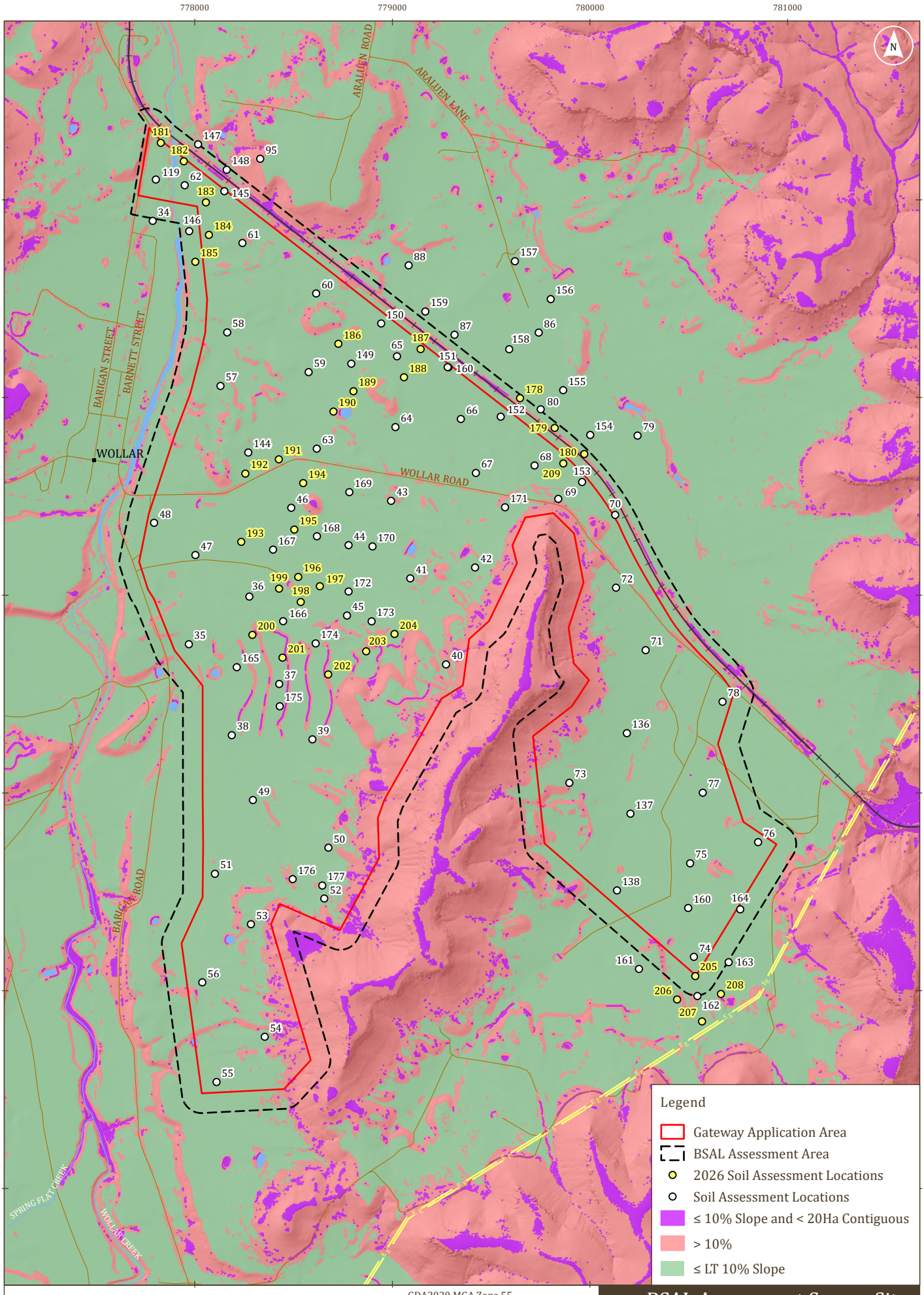
Table 5: Soil Sample Laboratory Analysis

Lab Analysis	
pH (1:5 water)	Rayment and Lyons (2011) - 4A1
Electrical Conductivity (EC)	Rayment and Lyons (2011) - 3A1
Cation Exchange Capacity, Exchangeable Sodium Percentage, and Calcium to Magnesium Ratio	Rayment and Lyons (2011) - 15J1 and Hazelton and Murphy (2016)
Particle Size Analysis	International Soil Science Society Hydrometer (in accordance with National Committee on Soil and Terrain [2009])
Munsell Colour Code	In-house (Munsell Soil Colour Classification)

Figure 9. Schematic Diagram of BSAL Verification Criteria



Source: Interim Protocol (OEH and DPI-OAS&FS, 2013)



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0 100 200 400 600 Meters

Scale: 1:25,000 @ A4

BSAL Assessment Survey Sites

FIGURE 10

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5. RESULTS

5.1. SOIL TYPES

Five soil mapping units were identified within the BSAL Assessment Area. The distribution of these soil units is illustrated on **Figure 11**. Detailed profile descriptions for each site survey location are included in **Appendix 1**. The soil laboratory analysis results used to determine the above classifications are attached in **Appendix 2**.

The soil mapping units consisted of the following within the BSAL Assessment Area:

- Soil Unit 1: Eutrophic Red Chromosol / Dermosol Complex – covering 109 ha;
- Soil Unit 2: Eutrophic Red Chromosols – covering 435 ha;
- Soil Unit 3: Eutrophic Red / Brown Dermosols – covering 90 ha;
- Soil Unit 4: Eutrophic Red / Yellow / Grey / Brown Kandosols – covering 43 ha;
- Soil Unit 5: Subnatric Yellow Sodosols – covering 46 ha.

Soil Unit 1

Soil Unit 1 is characterised by a Chromosol / Dermosol complex. A soil mapping unit complex is a map unit on a soil map that represents two or more different soil types or taxonomic units so thoroughly mixed that they cannot be shown separately at the map's scale. It's used for the purpose of this assessment as it is impractical to map separate units for Chromosols and Dermosols meeting the BSAL criteria. Based on the intermixed nature of these soil types, and how closely associated they are, the complex presented as Soil Map Unit 1 is the best practical representation of a broader soil association for BSAL assessment purposes.

The complex is comprised of Chromosols and Dermosols.

Chromosols, as outlined in Section 2.2.5, are soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2t horizon (or the major part of the entire B2t horizon if it is less than 0.2 m thick) is not sodic and not strongly acid.

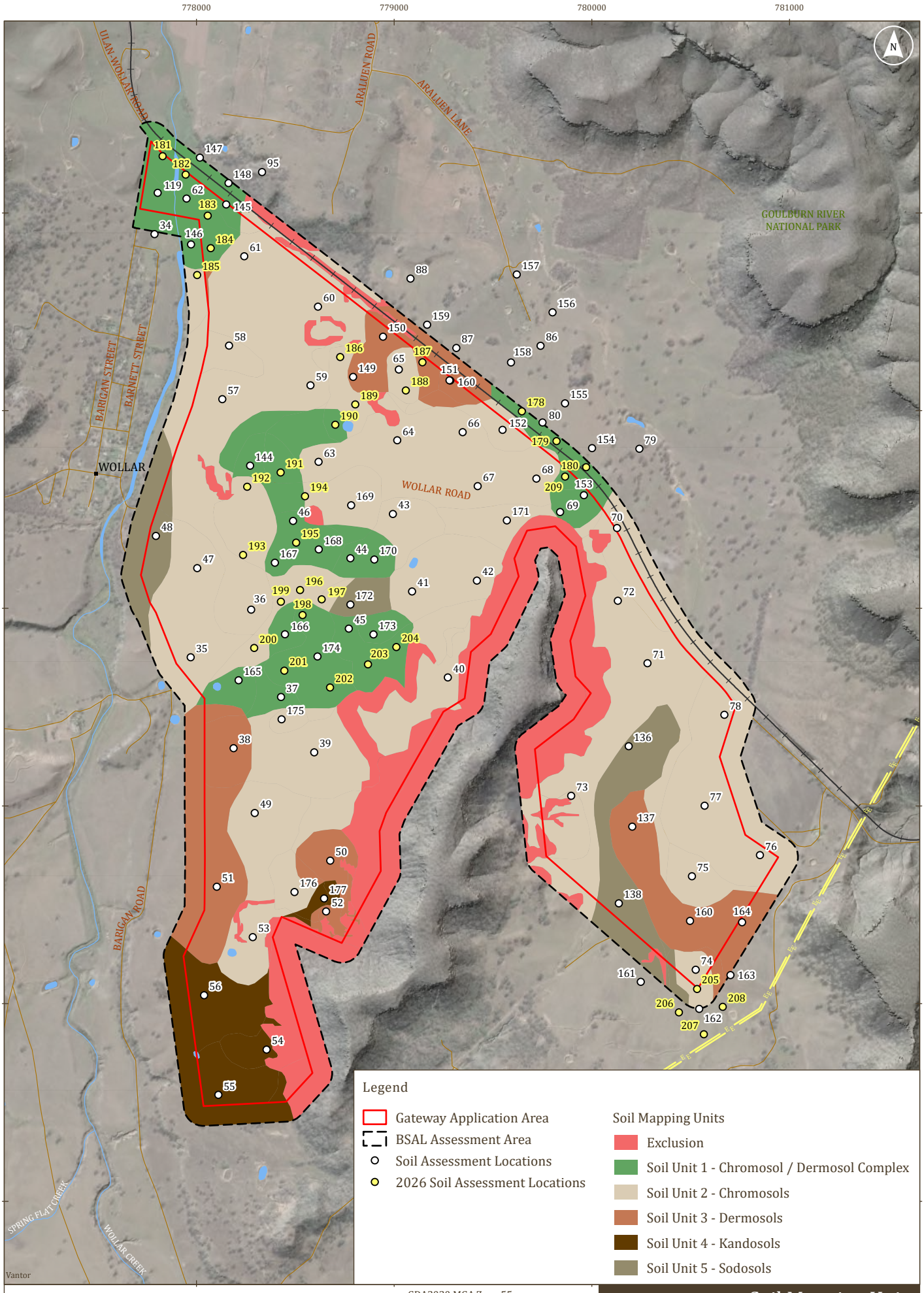
Dermosols, which as outlined in Section 2.2.5 are defined as soils other than Vertosols, Hydrosols, Calcarosols and Ferrosols which:

- have B2 horizons that have grade of pedality greater than weak throughout the major part of the horizon; and
- do not have clear or abrupt textural B horizon.

The Chromosol and Dermosols within this unit are largely only separated from each other by clay content in the upper B horizon (which is usually not significantly different), and otherwise having similar physicochemical characteristics.

Soil Unit 1 generally consists of loam, clay loam, silty loam and loamy sand and A horizons with weak or moderate structure overlying clay subsoils with moderate to strong structure via a clear boundary. These soils are generally acidic trending to alkaline at depth, are largely non-saline (minor presence of slightly saline or moderately saline horizons at depth) and occasionally contain faint or distinct mottled B horizon. Drainage ranges from imperfect to moderately well drained, and depth ranges from moderately deep to deep.

Eutrophic Red Chromosols and Dermosol are the dominant soil type at the great group level within this unit. Sub-dominant soil types at the great group level include Eutrophic Grey Chromosols, Eutrophic Brown Chromosols,



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0 100 200 400 600 Meters

Scale: 1:25,000 @ A4

Soil Mapping Units

FIGURE 11

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Eutrophic Yellow Chromosols, Eutrophic Red Kurosol, Eutrophic Brown Kurosols, Eutrophic Grey Dermosols and Eutrophic Black Dermosols.

Soil Unit 1 occurs as separated clusters around the central and northern sections of the BSAL Assessment Area, with a minor presence in the south east.

Soil Unit 2

Soil Unit 2 is characterised by Chromosols, generally consisting of loam, silty loam, clay loam and loamy sand A horizons with varied structure overlying clay loam and clay subsoils with moderate to strong structure. These soils have a wide range in pH however are generally acidic trending to alkaline at depth, are largely non-saline (minor presence of slightly saline or moderately saline horizons at depth) and occasionally sodic at depth. This unit contains sporadic bleached A2 horizons and distinct mottling in the B horizon. Drainage ranges from moderately well drained to poorly drained, with most profiles imperfectly drained, and depth ranges from shallow to deep.

This soil unit is generally similar to Soil Unit 1, albeit with inconsistencies in drainage and depth, as well as some chemical parameters.

Eutrophic Red Chromosols are the dominant soil type at the great group level within this unit. Sub-dominant soil types at the great group level include Eutrophic Red Chromosols, Eutrophic Brown Chromosols, Eutrophic Yellow Chromosols, Eutrophic Black Chromosols, Eutrophic Grey Chromosols, Eutrophic Brown Dermosol, Mesotrophic Red Kurosol and Subnatric Brown Sodosols.

Soil Unit 2 is the most spatially extensive mapping unit and occupies the mid to lower slopes that characterise the majority of the BSAL Assessment Area, in close association with Soil Unit 1.

Soil Unit 2 is the most spatially extensive soil unit, occupying the mid to lower slopes that characterise the majority of the BSAL Assessment Area.

Soil Unit 3

Soil Unit 3 is characterised by Dermosols, generally consisting of loam, silty loam, loamy sand and clay loam A horizons with moderate structure overlying clay loam and clay subsoils with moderate to strong structure. These soils display a wide range in pH characteristics, in both the topsoil and subsoil, ranging from moderately acidic to strongly alkaline, are largely non-saline with minor exceptions, and are largely non-sodic, also with minor exception of sodic subsoils. Drainage is generally moderate or imperfect with some poor drainage, and profile depth ranges from shallow to deep.

Eutrophic Red and Brown Dermosols are the dominant soil types at the great group level within this unit. Sub-dominant soil types at the great group level include Eutrophic Grey Dermosols, Eutrophic Black Dermosols and Eutrophic Yellow Dermosols.

Soil Unit 3 occupies sporadic areas within the BSAL assessment in association with Soil Units 1 and 2.

Soil Unit 4

Soil Unit 4 is characterised by Kandosols, which are defined as soils which have all of the following:

1. B2 horizons in which the major part has a grade of pedality that is massive or weak.
2. A maximum clay content in some part of the B2 horizon which exceeds 15% (i.e. heavy sandy loam [SL+] or heavier).
3. Do not have a clear or abrupt textural B horizon.
4. Are not calcareous throughout the solum, or below the A1 or Ap horizon or to a depth of 0.2 m if the A1 horizon is only weakly developed.

This soil unit generally consists of loam, silty loam and loamy sand A horizons with moderate structure overlying loam, silty loam and light clay subsoils with weak structure. These soils are generally slightly to strongly acidic trending to moderately acidic or alkaline at depth, and are consistently non-saline and non-sodic. Drainage ranges from moderately well to poor, and depth is generally deep.

Due to the range in colours for the detailed sites, there is an approximately even distribution within this unit of Eutrophic Red, Yellow, Grey and Brown Kandosols, which are grouped for practicality purposes for this assessment.

Soil Unit 4 is the most spatially limited mapping unit and occupies sections of mid to upper slopes within the southernmost zone of the BSAL Assessment Area.

Soil Unit 5

Soil Unit 5 is characterised by Sodosols, which are defined as soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2 horizon (or the major part of the entire B2 horizon if it is <0.2 m thick) is sodic and not strongly acid.

Soil Unit 5 generally consists of loam and loamy sand A horizons with a range in structure from weak to strong, overlying clay subsoils with moderate to strong structure via a clear or abrupt horizon boundary. These soils are generally acidic trending to alkaline at depth, ranging from strongly acidic to strongly alkaline, are largely non-saline in the topsoils trending to slightly or moderately saline at depth, and consistently contain a bleached A2 and distinct mottling in the B horizon. Drainage is generally poor or imperfect, and soil profiles are deep.

Subnatric Yellow Sodosols are the dominant soil type at the great group level within this unit. Sub-dominant soil types at the great group level include Subnatric Brown, Red and Grey Sodosols.

Soil Unit 5 occupies limited mid to lower sloped areas in south-east, central and far western zones of the BSAL Assessment Area.

5.2. BSAL VERIFICATION

The assessment of the detailed sites against the BSAL verification criteria resulted in 67 detailed sites failing the criteria within the BSAL Assessment Area and were assessed as verified non-BSAL. A further 11 sites within the BSAL Assessment Area met the soil profile criteria but were determined to be sub-dominant within their respective soil units and represent <20 ha of contiguous area and therefore were verified as non-BSAL.

The remaining detailed sites within the BSAL Assessment Area, which form the dominant soil type of Soil Unit 1, met the criteria and were determined to four separate contiguous areas, all >20 ha (including accounting for areas extending beyond the BSAL Assessment Area boundary). Therefore, Soil Unit 1 is verified BSAL.

Table 6 details the BSAL verification process and summarises limiting factors for each site. The mapping of verified BSAL located in the BSAL Assessment Area is presented as **Figure 12**.

Table 6: BSAL Verification Assessment Summary

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
1: Eutrophic Red Chromosol/Dermosol Complex	B34	Detailed	Haplic Eutrophic Grey Dermosol	BELOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	✓
	B37	Detailed	Mottled Eutrophic Brown Kurosol	BFLMWNR	✓	✓	✓	✓	✓	✓	✓	✘	✓	✓	✓	✓	✓	BSAL	-	✓	
	B44	Detailed	Mottled Eutrophic Red Chromosol	BFKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B45	Detailed	Bleached-Sodic Eutrophic Yellow Chromosol	BGLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B46	Detailed	Sodic Eutrophic Red Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B62	Detailed	Haplic Eutrophic Black Dermosol	BELLWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B69	Detailed	Mottled Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B80	Detailed	Haplic Eutrophic Red Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B86	Detailed	Mottled Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	✓
	B119	Detailed	Bleached-Sodic Eutrophic Brown Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B144	Detailed	Mottled Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B145	Detailed	Haplic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B146	Detailed	Sodic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B147	Observation	N/A	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✓	✓	✓	Non-BSAL	9. Poor drainage	N/A	
	B148	Detailed	Haplic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B153	Detailed	Haplic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B154	Detailed	Mottled Eutrophic Red Kurosol	BEKMWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
1: Eutrophic Red Chromosol/Dermosol Complex	B158	Detailed	Haplic Eutrophic Red Dermosol	BENOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	✓
	B165	Detailed	Haplic Eutrophic Brown Dermosol	BEKOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B166	Detailed	Haplic Eutrophic Red Chromosol	BHMOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B167	Detailed	Haplic Eutrophic Red Dermosol	BEMOV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B168	Detailed	Mottled Eutrophic Red Dermosol	BELOW	✓	✓	✓	✓	✘	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B170	Detailed	Haplic Eutrophic Red Chromosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B173	Detailed	Mottled Eutrophic Red Dermosol	BENMW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B174	Detailed	Haplic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B178	Detailed	Haplic Eutrophic Red Chromosol	BGLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B179	Detailed	Haplic Eutrophic Brown Chromosol	BGKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B180	Detailed	Bleached Eutrophic Red Chromosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B181	Detailed	Haplic Eutrophic Brown Dermosol	BELMW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B182	Detailed	Haplic Eutrophic Brown Dermosol	BEKLW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B183	Detailed	Haplic Eutrophic Red Dermosol	BELMW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B184	Detailed	Bleached Eutrophic Red Dermosol	BEKMW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B188	Detailed	Haplic Eutrophic Brown Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B190	Detailed	Bleached Eutrophic Red Chromosol	BGKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B191	Detailed	Bleached Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B194	Detailed	Haplic Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
1: Eutrophic Red Chromosol/Dermosol Complex	B195	Detailed	Bleached Eutrophic Red Chromosol	BGKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	✓
	B198	Detailed	Bleached-Sodic Eutrophic Brown Chromosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B201	Detailed	Mottled Eutrophic Brown Chromosol	BELOWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B202	Detailed	Bleached Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B203	Detailed	Bleached-Sodic Eutrophic Brown Chromosol	BGLOWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B204	Detailed	Bleached Eutrophic Brown Dermosol	BGLMW	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
	B209	Detailed	Mottled Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✓	
2. Eutrophic Red Chromosols	B35	Detailed	Mottled Mesotrophic Red Kurosol	BGNOVNR	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	✗
	B36	Detailed	Mottled Eutrophic Red Chromosol	BFLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B39	Detailed	Haplic Eutrophic Brown Chromosol	BFLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B40	Detailed	Mottled Eutrophic Red Chromosol	BFLOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓	Non-BSAL	8. Shallow soil depth 9. Poor drainage	✗	
	B41	Detailed	Haplic Eutrophic Red Chromosol	BGLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B42	Detailed	Bleached-Sodic Eutrophic Yellow Chromosol	BELOWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✗	Non-BSAL	10. pH 12. Chemical barrier (pH)	✗	✗
	B43	Detailed	Haplic Eutrophic Red Chromosol	BFKOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B47	Detailed	Bleached-Mottled Eutrophic Yellow Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B49	Detailed	Bleached-Sodic Eutrophic Red Chromosol	BHLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	Non-BSAL	9. Poor drainage 12. Chemical barrier (Ca:Mg ratio)	✗	
	B53	Detailed	Haplic Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B57	Detailed	Sodic Eutrophic Black Chromosol	BEMOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	

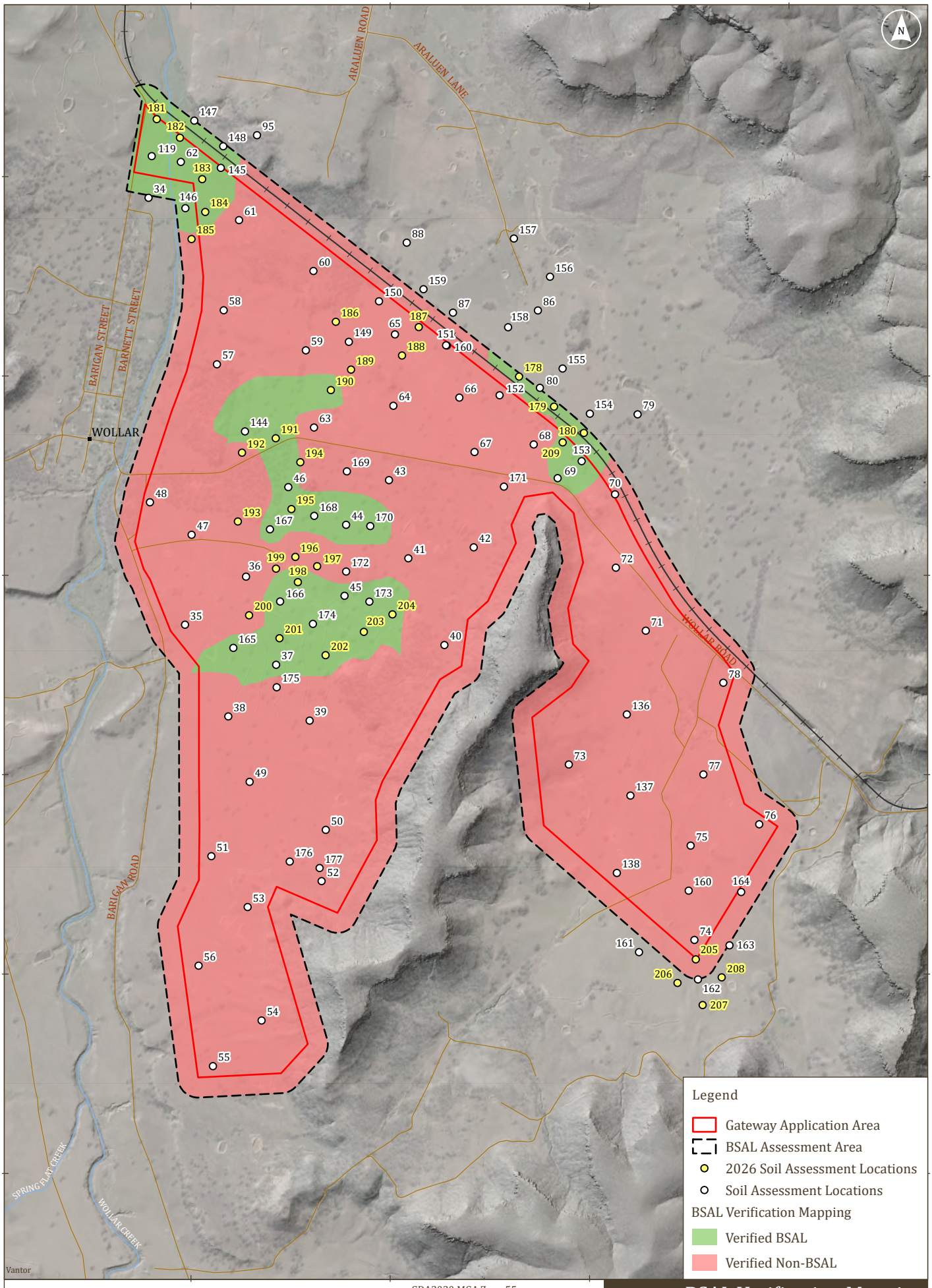
Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
2. Eutrophic Red Chromosols	B58	Detailed	Mottled-Sodic Eutrophic Brown Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	✗
	B59	Detailed	Haplic Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B60	Detailed	Haplic Eutrophic Red Chromosol	BFLOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B61	Detailed	Haplic Eutrophic Brown Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B63	Detailed	Haplic Eutrophic Brown Dermosol	BELLTNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B64	Detailed	Bleached-Mottled Eutrophic Brown Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B65	Detailed	Mottled Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B66	Detailed	Bleached-Sodic Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	Non-BSAL	8. Shallow soil depth 9. Poor drainage	✗	
	B67	Detailed	Bleached-Mottled Eutrophic Red Chromosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B68	Detailed	Bleached-Mottled Eutrophic Brown Chromosol	BGLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	Non-BSAL	8. Shallow soil depth 9. Poor drainage	✗	
	B70	Detailed	Sodic Eutrophic Red Chromosol	BGMOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	Non-BSAL	10. pH 11. Salinity 12. Chemical barrier (pH)	✗	
	B71	Detailed	Bleached-Mottled Eutrophic Red Chromosol	BGLOVNR	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓	Non-BSAL	8. Shallow soil depth 9. Poor drainage	✗	
	B72	Detailed	Bleached-Sodic Eutrophic Grey Chromosol	BGLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B73	Detailed	Bleached-Mottled Eutrophic Yellow Chromosol	BFLMWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B74	Detailed	Mottled Eutrophic Brown Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B75	Detailed	Bleached-Mottled Eutrophic Brown Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B76	Detailed	Bleached-Mottled Eutrophic Yellow Chromosol	BGLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B77	Detailed	Bleached-Mottled Eutrophic Yellow Chromosol	BFLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
2. Eutrophic Red Chromosols	B78	Detailed	Bleached-Mottled Eutrophic Grey Chromosol	BFLMWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	✗
	B79	Detailed	Haplic Eutrophic Red Chromosol	BEMOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	Non-BSAL	10. pH 12. Chemical barrier (pH)	✗	
	B152	Detailed	Haplic Eutrophic Red Chromosol	BGNOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B155	Detailed	Eutrophic Mottled-Subnatric Brown Sodosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✓	✓	Non-BSAL	7. Moderately low fertility 9. Poor drainage	✗	
	B156	Detailed	Eutrophic Mottled-Subnatric Brown Sodosol	BGMOWNR	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✗	✗	Non-BSAL	7. Moderately low fertility 9. Poor drainage 11. Salinity 12. Chemical barrier (EC)	✗	
	B157	Observation	N/A	-	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	Non-BSAL	2. Rock outcrop	✗	
	B162	Detailed	Mottled Eutrophic Yellow Chromosol	BGLOWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B169	Detailed	Sodic Eutrophic Red Chromosol	BHMOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B171	Detailed	Mottled Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B175	Detailed	Mottled Eutrophic Brown Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B176	Detailed	Haplic Eutrophic Red Chromosol	BHLOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B185	Detailed	Bleached Eutrophic Red Chromosol	BGLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B186	Detailed	Bleached Eutrophic Red Chromosol	BEKOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B189	Detailed	Haplic Eutrophic Brown Chromosol	BEKMWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	Non-BSAL	11, Salinity 12. Chemical barrier (ECe)	✗	
	B192	Detailed	Bleached Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B193	Detailed	Mottled Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B196	Detailed	Haplic Eutrophic Red Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B197	Detailed	Bleached Eutrophic Brown Chromosol	BELOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
2. Eutrophic Red Chromosols	B199	Detailed	Haplic Eutrophic Red Chromosol	BFKLOVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	✗
	B200	Detailed	Bleached-Mottled Eutrophic Red Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B205	Detailed	Bleached Eutrophic Grey Chromosol	BELOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
3. Eutrophic Red/Brown Dermosols	B38	Detailed	Mottled Eutrophic Black Dermosol	BEMOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	Non-BSAL	10. pH	✗	✗
	B50	Detailed	Haplic Eutrophic Brown Dermosol	BGLMWNR	✓	✗	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	Non-BSAL	2. Rock outcrop 6. Rock outcrop	✗	
	B52	Detailed	Haplic Eutrophic Grey Dermosol	BELLWNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B51	Detailed	Bleached-Sodic Eutrophic Brown Dermosol	BEMOWNR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B87	Detailed	Haplic Eutrophic Brown Chromosol	BFLOUNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B88	Detailed	Bleached-Sodic Eutrophic Yellow Dermosol	BELMWWR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	Non-BSAL	9. Poor drainage 11. Salinity 12. Chemical barrier	✗	
	B95	Detailed	Haplic Eutrophic Red Dermosol	BFLOWNR	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	Non-BSAL	2. Rock outcrop 3. >20% coarse fragments >60mm	✗	
	B137	Detailed	Bleached-Sodic Eutrophic Grey Dermosol	BELOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	✗
	B149	Detailed	Haplic Eutrophic Red Dermosol	BELOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B150	Detailed	Haplic Eutrophic Red Dermosol	BELOW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B151	Detailed	Haplic Eutrophic Red Dermosol	BHOOV	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B159	Detailed	Haplic Eutrophic Brown Dermosol	BELMV	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B160	Detailed	Bleached-Mottled Eutrophic Brown Dermosol	BGMNW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	
	B163	Detailed	Eutrophic Mottled-Subnatric Brown Sodosol	BENOWNR	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✓	✓	Non-BSAL	7. Moderately low fertility 9. Poor drainage	✗	
	B164	Detailed	Bleached-Mottled Eutrophic Brown Dermosol	BEMNW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	

Soil Map Unit	Site #	Inspection Site Type	Soil Profile – ASC	ASC Family Criteria	1. Is slope ≤10%?	2. Is there <30% Rock Outcrop?	3. ≤20% unattached Rock Fragments > 60mm?	4. Does ≤50% have Gilgais >500mm deep?	5. Is Slope <5%?	6. Are there nil rock outcrops?	7a. Does Soil Have Moderate Fertility?	7b. Does soil have moderately high or high fertility?	8. Is ERD to a physical barrier ≥750mm?	9. Is drainage better than poor?	10. Is pH (water) between 5.0 and 8.9?	11. Is salinity (ECe) ≤4 dS/m	12. Is ERD to a chemical barrier ≥750mm?	Soil Profile BSAL Verification	Limiting Factors	Does the profile represent >20ha contiguous area	Does the Soil Map Unit meet BSAL Criteria?
3. Eutrophic Red/Brown Dermosols	B187	Detailed	Haplic Eutrophic Brown Dermosol	BEKMVNR	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	✗
	B207	Detailed	Bleached-Sodic Eutrophic Brown Dermosol	BGLMW	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
	B208	Detailed	Haplic Eutrophic Brown Dermosol	BGLOW	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
4: Eutrophic Red/Yellow/Grey/Brown Kandosols	B54	Detailed	Bleached-Mottled Eutrophic Yellow Kandosol	BFKLWNR	✓	✓	✓	✓	✗	✓	✓	✗	✓	✗	✓	✓	✓	Non-BSAL	9. Poor drainage	✗	✗
	B55	Detailed	Haplic Eutrophic Red Kandosol	BELMWNR	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	Non-BSAL	5./7. >5% slope with moderate fertility	✗	
	B56	Detailed	Mottled Eutrophic Grey Kandosol	BELLVNR	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	Non-BSAL	8. Shallow soil depth	✗	
	B177	Detailed	Haplic Eutrophic Brown Kandosol	BHLLVNR	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	BSAL	-	✗	
5: Subnatric Yellow Sodosols	B48	Detailed	Eutrophic Subnatric Yellow Sodosol	BELOWNR	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✓	✗	Non-BSAL	7. Moderately low fertility 9. Poor drainage 12. Chemical barrier	✗	✗
	B136	Detailed	Eutrophic Subnatric Yellow Sodosol	BFKOWNR	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✓	✓	Non-BSAL	7. Moderately low fertility 9. Poor drainage	✗	
	B138	Detailed	Eutrophic Subnatric Grey Sodosol	BFKOWNR	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✗	✗	Non-BSAL	7. Moderately low fertility 9. Poor drainage 11. Salinity 12. Chemical barrier (EC, ESP)	✗	
	B161	Detailed	Eutrophic Mottled-Subnatric Yellow Sodosol	BGLOWNR	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✓	✓	Non-BSAL	7. Moderately low fertility 9. Poor drainage	✗	
	B172	Detailed	Eutrophic Subnatric Red Sodosol	BELOVNR	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✗	Non-BSAL	7. Moderately low fertility 8. Shallow soil depth 12. Chemical barrier (ESP)	✗	
	B206	Detailed	Eutrophic Subnatric Yellow Sodosol	BGLOWNR	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	✓	✓	✗	Non-BSAL	7. Moderately low fertility 12. Chemical barrier (ESP)	✗	

Note: Green shading indicates the site passes the BSAL verification criterion; amber shading indicates the site fails the BSAL verification criterion but is not excluded as BSAL; and red shading indicates the site fails the BSAL criterion.



GDA2020 MGA Zone 55

MINESOILS
LAND & REHABILITATION SPECIALISTS

0 100 200 400 600 Meters

Scale: 1:25,000 @ A4

BSAL Verification Mapping

FIGURE 12

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6. CONCLUSION

The BSAL Assessment Area was defined as the Gateway Application Area plus the required 100 m buffer, resulting in a BSAL Assessment Area of 723 ha (excluding areas of >10% slope and areas <20 ha contiguous). A total of 120 detailed sites (106 detailed sites within the BSAL Assessment Area) were assessed in accordance with the Interim Protocol.

Soil Unit 1: Eutrophic Red Chromosol/Dermosol complex has been determined to be verified BSAL with a total of 42 sites within this Soil Unit satisfying the BSAL criteria. This unit is comprised of four separate mapped polygon areas, all of which cover a contiguous area >20 ha, including by extending outside the BSAL Assessment Area.

Soil Units 2 – 5 were verified as non-BSAL as the majority of representative sites within these Soil Units failed to meet the BSAL criteria. In addition, exclusion areas of >10% slope and areas <20 ha contiguous were also verified as non-BSAL.

Therefore, verified BSAL is confirmed to be present over approximately 109 ha or 15% of the BSAL Assessment Area. The remaining 614 ha or 85% of the BSAL Assessment Area is verified non-BSAL.

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Appendix 1
Soil Profile Descriptions

Site Description – Site B34				
Site Reference	B34	**ASC Name**	Haplic Eutrophic Grey Dermosol (BELOW)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 777787
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416892



Plate 1 – Soil Profile (B34)



Plate 2 – Surface (B34)



Plate 3 – Landscape (B34)

Horizon	Depth (m)	Description
A1	0.00 – 0.25	Dark Brown (Munsell 7.5YR 3/2) Silty Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Common roots and well drained. Gradual boundary.
B21	0.25 – 0.70	Brown (Munsell 7.5YR 4/2) Silty Clay Loam with strong pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Few roots and moderately drained. Gradual boundary.
B22	0.70+	Brown (Munsell 10YR 4/3) Light Clay to Clay Loam with strong pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and imperfectly drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	6.3	Slightly Acidic	0.5	Non sodic
0.15 – 0.25	0.3	Non-saline	7.0	Neutral	1.0	Non sodic
0.40 – 0.50	0.4	Non-saline	7.9	Moderately Alkaline	2.5	Non sodic
0.65 – 0.75	0.5	Non-saline	8.4	Moderately Alkaline	4.7	Non sodic

Site Description – Site B35				
Site Reference	B35	**ASC Name**	Mottled Mesotrophic Red Kurosol (BGNOVNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 777970
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414751



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark Yellowish-brown (Munsell 10YR 3/4) Silty Clay Loam with moderate pedality. Strongly acidic pH, non-saline and non-sodic. 10% coarse fragments 20mm. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.30	Bleached Pink (Munsell 10YR 7/4) Silty Loam with weak pedality. Strongly acidic pH, non-saline and non-sodic. 30% coarse fragments 20 – 60mm. Common fine roots and imperfectly drained. Clear boundary.
B21	0.30 – 0.60	Yellowish-red (Munsell 5YR 5/6) Silty Clay with moderate pedality. Strongly acidic pH, non-saline and non-sodic. 10% coarse fragments 20 – 60mm. Very few roots and imperfectly drained. Gradual boundary.
B22	0.60 – 0.80	Yellowish-red (Munsell 5YR 4/6) Silty Clay with strong pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and poorly drained. 40% distinct grey mottling. Parent material at 0.8m

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.2	Non-saline	5.4	Strongly Acidic	1.3	Non sodic
0.20 – 0.30	0.2	Non-saline	5.5	Strongly Acidic	1.9	Non sodic
0.40 – 0.50	0.2	Non-saline	5.2	Strongly Acidic	1.6	Non sodic
0.65 – 0.75	0.2	Non-saline	5.3	Strongly Acidic	3.1	Non sodic

Site Description – Site B36					
Site Reference	B36	**ASC Name**	Mottled Eutrophic Red Chromosol (BFLOVNR)		
Average Slope	2%	**Land Use**	Grazing	**Coordinates**	
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55	
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778276	
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414992	



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/3) Clay Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.20	Strong brown (Munsell 7.5YR 5/6) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Very few fine roots and moderately drained. Clear boundary.
B21	0.20 – 0.45	Yellowish-red (Munsell 5YR 4/6) Heavy Clay with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and moderately drained.
B22	0.45 – 0.55	Strong brown (Munsell 7.5YR 4/6) Heavy Clay with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 20% distinct red mottling. Parent material at 0.55m

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.7	Moderately Acidic	0.6	Non sodic
0.10 – 0.20	0.4	Non-saline	6.0	Moderately Acidic	0.4	Non sodic
0.30 – 0.40	0.2	Non-saline	5.6	Moderately Acidic	1.8	Non sodic
0.45 – 0.55	0.3	Non-saline	5.7	Moderately Acidic	2.9	Non sodic

Site Description – Site B37				
Site Reference	B37	**ASC Name**	Mottled Eutrophic Brown Kurosol (BFLMWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778427
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414550



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A11	0.00 – 0.10	Dark yellowish-brown (Munsell 10YR 4/4) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A12	0.10 – 0.20	Strong brown (Munsell 7.5YR 5/6) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Common fine roots and imperfectly drained. Clear boundary.
A2	0.20 – 0.55	Reddish-yellow (Munsell 10YR 7.5YR 6/6) Loam with weak pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Few roots and imperfectly drained. Clear boundary.
B2	0.55+	Strong brown (Munsell 7.5YR 5/8) Light Clay with moderate pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.8	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.3	Non-saline	5.5	Moderately Acidic	0.9	Non sodic
0.40 – 0.50	0.3	Non-saline	5.5	Strongly Acidic	1.3	Non sodic
0.65 – 0.75	0.3	Non-saline	5.1	Strongly Acidic	1.2	Non sodic

Site Description – Site B38				
Site Reference	B38	**ASC Name**	Mottled Eutrophic Black Dermosol (BEMOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Open Flat	**BSAL Site Status**	Verified Non-BSAL	X: 778187
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414291



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Brown (Munsell 7.5YR 4/2) Silty Clay Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
B21	0.20 – 0.60	Very dark grey (Munsell 7.5YR 3/1 to 10YR 3/1) Silty Clay with strong pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Gradual boundary.
B22	0.60 – 0.90	Brown (Munsell 7.5YR 4/3) Silty Clay with strong pedality. Strongly alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	6.3	Slightly Acidic	0.4	Non sodic
0.20 – 0.30	0.6	Non-saline	8.2	Moderately Alkaline	2.1	Non sodic
0.40 – 0.50	0.5	Non-saline	8.1	Moderately Alkaline	1.9	Non sodic
0.65 – 0.75	2.0	Slightly saline	9.0	Strongly Alkaline	5.5	Non sodic

Site Description – Site B39				
Site Reference	B39	**ASC Name**	Haplic Eutrophic Brown Chromosol (BFLOVNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778595
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414270



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Brown (Munsell 10YR 4/3) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.20 – 0.50	Strong brown to Yellowish-brown (Munsell 7.5YR 4/6 to 10YR 5/8) Light-medium Clay to Silty Clay with strong pedality. Neutral to mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
B22	0.50 – 0.65	Yellowish-brown (Munsell 10YR 5/8) Silty Clay with moderate pedality. Mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 30% distinct grey mottling. Parent material at 0.65m

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.5	Non-saline	5.7	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.3	Non-saline	6.5	Neutral	0.4	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	0.3	Non sodic
0.55 – 0.65	0.3	Non-saline	7.6	Mildly Alkaline	1.5	Non sodic

Site Description – Site B40				
Site Reference	B40	**ASC Name**	Mottled Eutrophic Red Chromosol (BFLOVNR)	
Average Slope	8%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779271
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414649



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/2) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.10 – 0.20	Bleached pinkish grey (Munsell 7.5YR 7/2) Silty Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and poorly drained. Clear boundary.
B2	0.20 – 0.55	Yellowish-red to dark reddish-gray (Munsell 5YR 4/6 to 2.5YR 4/1) Silty Clay with strong pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Few fine roots and poorly drained. 40% distinct grey mottling. Gradual boundary.
BC	0.55 – 0.70	Transition horizon to parent material. Parent material at 0.7 m.

Sample Depth	ECe		$pH_{(1:5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.9	Moderately Acidic	0.2	Non sodic
0.10 – 0.20	0.3	Non-saline	6.2	Slightly Acidic	0.2	Non sodic
0.30 – 0.40	0.3	Non-saline	6.3	Slightly Acidic	0.5	Non sodic
0.45 – 0.55	0.2	Non-saline	6.2	Slightly Acidic	0.5	Non sodic

Site Description – Site B41				
Site Reference	B41	**ASC Name**	Haplic Eutrophic Red Chromosol (BGLOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779090
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415084



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.20	Yellowish-brown (Munsell 10YR 5/4) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
B	0.20 – 0.50	Red to Strong Brown (Munsell 2.5YR 5/8 to 7.5YR 5/6) Heavy Clay with weak pedality. Neutral to mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
CB	0.50+	Transition horizon to parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.20	0.4	Non-saline	5.9	Moderately Acidic	0.2	Non sodic
0.20 – 0.30	0.2	Non-saline	6.9	Neutral	0.7	Non sodic
0.40 – 0.50	0.2	Non-saline	7.7	Mildly Alkaline	0.4	Non sodic

Site Description – Site B42				
Site Reference	B42	**ASC Name**	Bleached-Sodic Eutrophic Yellow Chromosol (BELOWNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779418
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415139



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.25	Bleached light grey (Munsell 10YR 7/2) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. 70% coarse fragments 10 – 30mm. Few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.50	Light yellowish-brown (Munsell 10YR 6/4) Heavy Clay with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Imperfectly drained. 10% faint grey mottling. Gradual boundary.
B22	0.50+	Light yellowish-brown (Munsell 10YR 6/4) Silty Clay with moderate pedality. Very strongly alkaline pH, slightly saline and sodic. Nil coarse fragments. Imperfectly drained. 30% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.9	Non-saline	5.7	Moderately Acidic	1.2	Non sodic
0.10 – 0.20	0.4	Non-saline	6.4	Slightly Acidic	1.1	Non sodic
0.30 – 0.40	0.3	Non-saline	5.7	Moderately Acidic	3.8	Non sodic
0.65 – 0.75	2.6	Slightly saline	9.1	Very Strongly Alkaline	9.5	Sodic

Site Description – Site B43				
Site Reference	B43	**ASC Name**	Haplic Eutrophic Red Chromosol (BFKOVNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778993
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415476

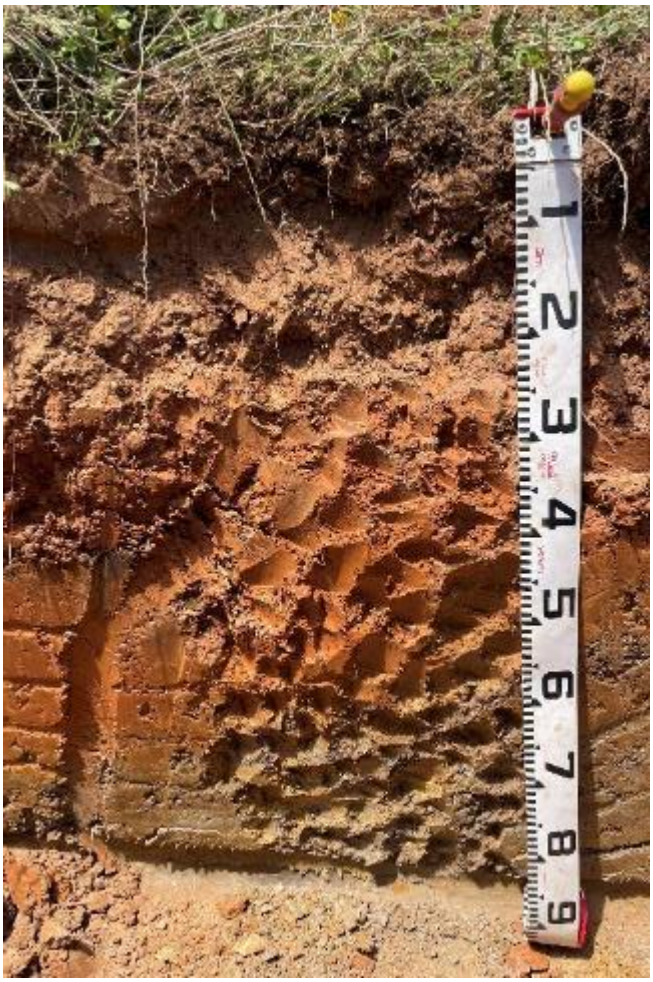


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/4) Loamy Sand with strong pedality. Moderately acidic pH, slightly saline and non-sodic. 20% coarse fragments 10mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.20	Strong Brown (Munsell 7.5YR 5/6) Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. 50% coarse fragments 10mm. Many fine roots and well drained. Clear boundary.
B2	0.20 – 0.60	Yellowish-red (Munsell 5YR 5/8 to 5YR 4/6) Silty Clay with strong pedality. Moderately alkaline to mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Few fine roots, moderately drained. Clear boundary.
CB	0.60+	Weathered parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	2.7	Slightly saline	5.7	Moderately Acidic	0.8	Non sodic
0.10 – 0.20	0.3	Non-saline	6.1	Slightly Acidic	0.2	Non sodic
0.20 – 0.30	0.3	Non-saline	7.8	Moderately Alkaline	0.8	Non sodic
0.40 – 0.50	0.3	Non-saline	7.8	Mildly Alkaline	0.6	Non sodic

Site Description – Site B44				
Site Reference	B44	**ASC Name**	Mottled Eutrophic Red Chromosol (BFKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778778
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415252



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Brown (Munsell 7.5YR 4/4) Loamy Sand with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 5 – 20mm. Many fine roots and well drained. Clear boundary.
B21	0.20 – 0.50	Dark red (Munsell 2.5YR 3/6) Light-medium Clay to Light Clay with strong pedality. Neutral to mildly alkaline pH, non-saline and non-sodic. 20% coarse fragments 5 – 10mm. Very few fine roots and imperfectly drained. 20% distinct yellow mottles. Gradual boundary.
B22	0.50+	Red (Munsell 2.5YR 4/6) Clay Loam with strong pedality. Moderately alkaline pH, non-saline and non-sodic. 20% coarse fragments 5 – 10mm. No roots and imperfectly drained. 40% distinct red mottles.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	6.0	Moderately Acidic	1.3	Non sodic
0.20 – 0.30	0.2	Non-saline	6.8	Neutral	0.4	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	0.4	Non sodic
0.65 – 0.75	0.7	Non-saline	8.3	Moderately Alkaline	1.7	Non sodic

Site Description – Site B45				
Site Reference	B45	**ASC Name**	Bleached-Sodic Eutrophic Yellow Chromosol (BGLOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778770
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414896

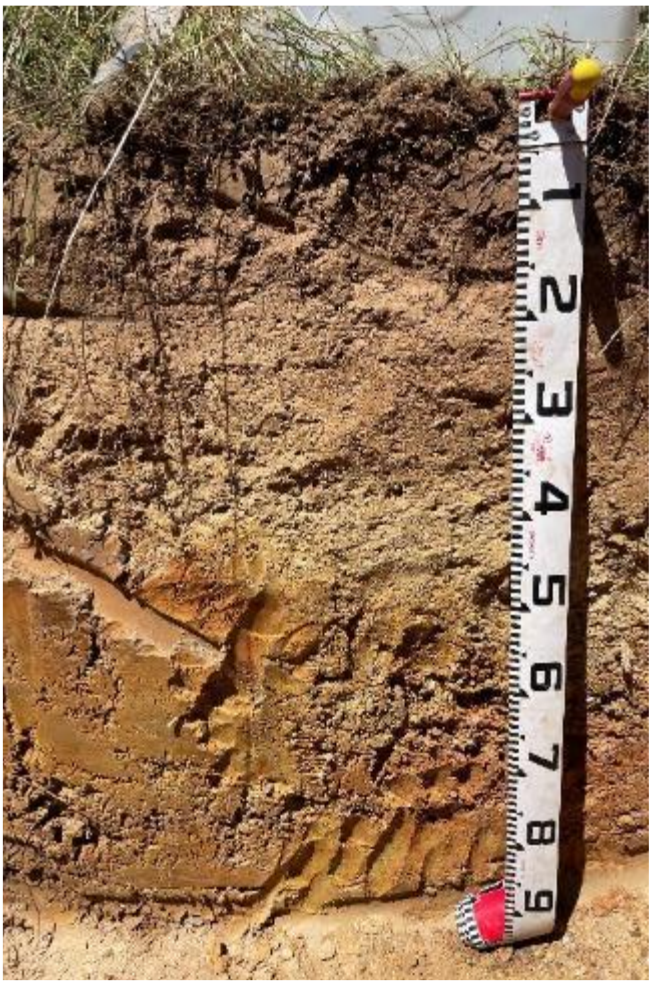


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Very Dark Brown (Munsell 10YR 4/4) Loamy Sand with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.45	Bleached very pale brown (Munsell 10YR 7/3) Loamy Sand with weak pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.45+	Brownish-yellow to Yellowish-brown (Munsell 10YR 6/6 to 10YR 5/6) Medium Clay to Light Clay with strong pedality. Moderately acidic to slightly acidic pH, non-saline and non-sodic trending to sodic at depth. 50% coarse fragments 10mm. No roots and imperfectly drained. Faint grey mottling 30%.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.3	Non-saline	6.4	Slightly Acidic	0.3	Non sodic
0.25 – 0.35	0.4	Non-saline	5.5	Strongly Acidic	1.0	Non sodic
0.45 – 0.55	0.3	Non-saline	5.7	Moderately Acidic	2.5	Non sodic
0.65 – 0.75	0.7	Non-saline	6.2	Slightly Acidic	6.3	Sodic

Site Description – Site B46				
Site Reference	B46	**ASC Name**	Sodic Eutrophic Red Chromosol (BFLOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778488
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415441



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark Brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.20 – 0.50	Yellowish-brown to Reddish-brown (Munsell 5YR 4/6 to 5YR 4/4) Light to Medium Clay with strong pedality. Moderately to slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Gradual boundary.
B22	0.50+	Yellowish-brown (Munsell 10YR 5/4) Heavy Clay with strong pedality. Moderately alkaline pH, non-saline and sodic. Nil coarse fragments. No roots and moderately drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.7	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.2	Non-saline	5.8	Moderately Acidic	2.4	Non sodic
0.40 – 0.50	0.6	Non-saline	6.3	Slightly Acidic	4.9	Non sodic
0.65 – 0.75	1.4	Non-saline	7.9	Moderately Alkaline	7.9	Sodic

Site Description – Site B47				
Site Reference	B47	**ASC Name**	Bleached-Mottled Eutrophic Yellow Chromosol (BFLOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778003
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415202



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark Brown (Munsell 7.5YR 3/4) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 2 – 5mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.40	Bleached very pale brown (Munsell 10YR 7/4) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. 20% coarse fragments 2 – 5mm. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.40+	Brownish-yellow to Yellowish-brown (Munsell 10YR 6/6 to 10YR 5/4) Light-medium Clay to Light Clay at depth with strong pedality. Mildly alkaline to moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and poorly drained. 30% distinct grey mottling. 15% distinct red mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.3	Non-saline	5.7	Moderately Acidic	0.8	Non sodic
0.20 – 0.30	0.2	Non-saline	6.3	Slightly Acidic	0.6	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	0.5	Non sodic
0.65 – 0.75	0.4	Non-saline	8.1	Moderately Alkaline	0.5	Non sodic

Site Description – Site B48				
Site Reference	B48	**ASC Name**	Eutrophic Subnatric Yellow Sodosol (BELOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Open Flat	**BSAL Site Status**	Verified Non-BSAL	X: 777794
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415365



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark Brown (Munsell 7.5YR 3/2) Loam with strong pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.15 – 0.25	Bleached very pale brown (Munsell 10YR 7/3) Loamy Sand with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.60	Light yellowish-brown (Munsell 10YR 6/4) Light-medium Clay with strong pedality. Slightly acidic pH, non-saline and sodic. Nil coarse fragments. Very few fine roots and poorly drained. Gradual boundary. 40% distinct grey mottling.
B22	0.60+	Dark Yellowish-brown (Munsell 10YR 4/6) Clay Loam with strong pedality. Strongly alkaline pH, slightly saline and sodic. 20% coarse fragments 5 – 10mm. Very few roots and poorly drained. 30% distinct grey mottling. 20% distinct red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.3	Non-saline	5.3	Strongly Acidic	1.7	Non sodic
0.15 – 0.25	0.5	Non-saline	6.0	Moderately Acidic	4.6	Non sodic
0.30 – 0.40	0.5	Non-saline	6.4	Slightly Acidic	7.3	Sodic
0.65 – 0.75	3.2	Slightly saline	8.4	Strongly Alkaline	23.7	Sodic

Site Description – Site B49				
Site Reference	B49	**ASC Name**	Bleached-Sodic Eutrophic Red Chromosol (BHLOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778294
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413963



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Pinkish-gray (Munsell 7.5YR 6/2) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 40% coarse fragments 20 – 80mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.25	Bleached white (Munsell 5YR 8/1) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 80% coarse fragments 20 – 60mm. Very few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.60	Red (Munsell 2.5YR 5/6) Heavy Clay with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. Gradual boundary.
B22	0.60+	Light yellowish-brown (Munsell 10YR 6/4) Clay Loam with moderate pedality. Slightly acidic pH, non-saline and sodic. Nil coarse fragments. No roots and poorly drained. 40% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.6	Moderately Acidic	2.3	Non sodic
0.10 – 0.20	0.1	Non-saline	5.7	Moderately Acidic	1.8	Non sodic
0.30 – 0.40	0.6	Non-saline	5.9	Moderately Acidic	4.0	Non sodic
0.65 – 0.75	2.0	Non-saline	6.1	Slightly Acidic	10.4	Sodic

Site Description – Site B50				
Site Reference	B50	**ASC Name**	Haplic Eutrophic Brown Dermosol (BGLMWNR)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778676
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413722



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Grayish-brown (Munsell 10YR 5/2) Sandy Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 40% coarse fragments 20 – 150mm. Many fine roots and well drained. Gradual boundary.
B21	0.20 – 0.60	Brown to Light Brown (Munsell 10YR 4/3 to 7.5YR 6/3) Loamy Sand to Sandy Loam with weak pedality. Moderately to slightly acidic pH, non-saline and non-sodic. 40% coarse fragments 20 – 150mm. Very few fine roots and well drained. Gradual boundary.
B22	0.60 – 0.90	Brown (Munsell 7.5YR 4/3) Sandy Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 30% coarse fragments 20 – 150mm. very few fine roots and well drained. Gradual boundary.
B23	0.90+	Very dark grayish brown (Munsell 10YR 3/2) Light Clay with moderate pedality. Neutral pH, non- saline and non-sodic. Nil coarse fragments. No roots and well drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.7	Moderately Acidic	1.3	Non sodic
0.20 – 0.30	0.4	Non-saline	6.0	Moderately Acidic	1.0	Non sodic
0.40 – 0.50	0.2	Non-saline	6.1	Slightly Acidic	1.1	Non sodic
0.65 – 0.75	0.3	Non-saline	5.9	Moderately Acidic	1.6	Non sodic
0.90 – 1.00	0.2	Non-saline	6.9	Neutral	0.9	Non sodic

Site Description – Site B51				
Site Reference	B51	**ASC Name**	Bleached-Sodic Eutrophic Brown Chromosol (BEMOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778102
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413590



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 10YR 4/3) Silty Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 20 – 50mm. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.25	Bleached light grey (Munsell 10YR 7/1) Silty Clay Loam with weak pedality. Neutral pH, non-saline and non-sodic. 20% coarse fragments 20 – 50mm. Very few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.55	Brown (Munsell 10YR 4/3) Silty Clay with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. Gradual boundary.
B22	0.55+	Dark Brown (Munsell 7.5YR 3/2) Light-medium Clay with moderate pedality. Moderately acidic pH, non-saline and sodic. Nil coarse fragments. No roots and poorly drained. 20% distinct grey mottling, 10% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.2	Non-saline	5.9	Moderately Acidic	0.6	Non sodic
0.15 – 0.25	0.3	Non-saline	6.6	Neutral	2.4	Non sodic
0.30 – 0.40	0.6	Non-saline	6.2	Slightly Acidic	5.1	Non sodic
0.65 – 0.75	1.0	Non-saline	7.7	Mildly Alkaline	6.5	Sodic

Site Description – Site B52				
Site Reference	B52	**ASC Name**	Haplic Eutrophic Grey Dermosol (BELLWNR)	
Average Slope	8%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Potential BSAL	X: 778655
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413465

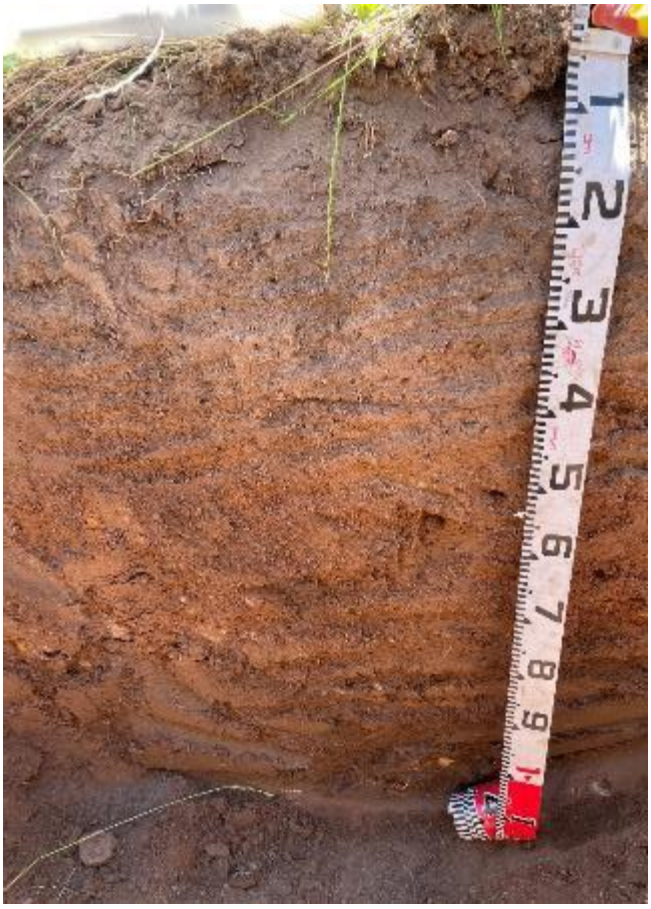


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Brown (Munsell 7.5YR 4/2) Sandy Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 20 – 50mm. Many fine roots and well drained. Gradual boundary.
B21	0.20 – 0.50	Brown (Munsell 7.5YR 4/2 to 7.5YR 4/4) Sandy Loam with moderate pedality. Slightly acidic to neutral pH, non-saline and non-sodic. 20% coarse fragments 20 – 50mm. Few fine roots and imperfectly drained. Gradual boundary.
B22	0.50 – 0.90	Brown (Munsell 7.5YR 4/3) Sandy Loam with weak pedality. Strongly alkaline pH, non-saline and non-sodic. 30% coarse fragments 2 - 5mm. No roots and well drained. Clear boundary.
B23	0.90+	Very dark brown (Munsell 7.5YR 2.5/3) Sandy Loam with moderate pedality. Mildly alkaline pH, non-saline and non-sodic. 10% coarse fragments 50 – 150mm. No roots and well drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	6.0	Moderately Acidic	1.0	Non sodic
0.20 – 0.30	0.2	Non-saline	6.3	Slightly Acidic	0.5	Non sodic
0.40 – 0.50	0.4	Non-saline	7.2	Neutral	0.9	Non sodic
0.65 – 0.75	0.8	Non-saline	8.5	Strongly Alkaline	0.7	Non sodic
0.90 – 1.00	0.3	Non-saline	7.8	Mildly Alkaline	0.8	Non sodic

Site Description – Site B53				
Site Reference	B53	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOVNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778284
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413335



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 10YR 5/3) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B2	0.15 – 0.50	Yellowish red (Munsell 5YR 4/6 to 5YR 5/8) Light-medium Clay to Light Clay with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
BC	0.50 – 0.65	Transition horizon to unweathered parent material at 0.65m

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.2	Non-saline	6.0	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.2	Non-saline	5.9	Moderately Acidic	0.5	Non sodic
0.40 – 0.50	0.2	Non-saline	5.8	Moderately Acidic	0.5	Non sodic

Site Description – Site B54				
Site Reference	B54	**ASC Name**	Bleached-Mottled Eutrophic Yellow Kandosol (BFKLWNR)	
Average Slope	9%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778354
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412766



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 10YR 4/3) Loamy Sand with moderate pedality. Strongly acidic pH, non-saline and non-sodic. 10% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.50	Bleached White (Munsell 10YR 8/2) Loamy Sand with weak pedality. Moderately to slightly acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Very few fine roots and poorly drained. Clear boundary.
B2	0.50+	Light yellowish-brown (Munsell 10YR 6/4) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 20% distinct grey mottling. 40% distinct red mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.4	Strongly Acidic	0.5	Non sodic
0.20 – 0.30	0.3	Non-saline	5.7	Moderately Acidic	0.5	Non sodic
0.40 – 0.50	0.4	Non-saline	6.2	Slightly Acidic	1.6	Non sodic
0.65 – 0.75	0.3	Non-saline	5.6	Moderately Acidic	4.0	Non sodic

Site Description – Site B55				
Site Reference	B55	**ASC Name**	Haplic Eutrophic Red Kandosol (BELMWNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778110
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412537



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Yellowish-brown (Munsell 10YR 5/4) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
B21	0.15 – 0.40	Reddish-brown (Munsell 5YR 5/4) Loamy Sand with weak pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately well drained. Gradual boundary.
B22	0.40 – 0.80	Strong brown to Red (Munsell 7.5YR 5/6 to 2.5YR 5/6) Loamy Sand to Clay Loam with weak pedality. Mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and moderately well drained. Gradual boundary.
B23	0.80+	Yellowish-red (Munsell 5YR 4/6) Light Clay with weak pedality. Mildly alkaline pH, non-saline and non-sodic. No roots and imperfectly drained. 40% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.5	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.4	Non-saline	6.7	Neutral	0.3	Non sodic
0.40 – 0.50	0.3	Non-saline	7.0	Neutral	0.3	Non sodic
0.65 – 0.75	0.2	Non-saline	7.4	Mildly Alkaline	0.7	Non sodic
0.85 – 0.95	0.2	Non-saline	7.7	Mildly Alkaline	0.6	Non sodic

Site Description – Site B56				
Site Reference	B56	**ASC Name**	Mottled Eutrophic Grey Kandosol (BELLVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778038
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413041



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Yellowish-brown (Munsell 10YR 5/4) Silty Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
B21	0.15 – 0.45	Light brown to very pale brown (Munsell 7.5YR 6/3 to 10YR 7/3) Silty Loam to Loam with weak pedality. Slightly acidic to neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Gradual boundary.
B22	0.45 – 0.70	Yellowish-brown (Munsell 10YR 5/6) Sandy Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 50% coarse fragments 10 – 20mm. No roots and imperfectly drained. 20% distinct grey mottling.
BC	0.70+	Transition horizon to bedrock dominated by weathered parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.9	Moderately Acidic	0.4	Non sodic
0.15 – 0.25	0.1	Non-saline	6.4	Slightly Acidic	0.4	Non sodic
0.35 – 0.45	0.1	Non-saline	6.5	Neutral	1.1	Non sodic
0.50 – 0.60	0.2	Non-saline	5.9	Moderately Acidic	2.5	Non sodic

Site Description – Site B57				
Site Reference	B57	**ASC Name**	Sodic Eutrophic Black Chromosol (BEMOVNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778130
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416057



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Yellowish-brown (Munsell 10YR 5/3) Silty Clay Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.10 – 0.35	Very dark brown (Munsell 10YR 2/2) Heavy Clay with strong pedality. Slightly acidic pH, slightly saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Gradual boundary.
B22	0.35 – 0.70	Dark reddish-brown to Yellowish-red (Munsell 2.5YR 2.5/4 to 5YR 4/6) Heavy Clay with strong pedality. Moderately to very strongly acidic pH, slightly saline and sodic. Nil coarse fragments. No roots and moderately drained.
C	0.70	Parent material

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.9	Moderately Acidic	0.4	Non sodic
0.15 – 0.25	0.3	Non-saline	6.3	Slightly Acidic	3.2	Non sodic
0.35 – 0.45	1.5	Non-saline	5.7	Moderately Acidic	7.4	Sodic
0.60 – 0.70	3.1	Slightly saline	5.0	Very Strongly Acidic	9.3	Sodic

Site Description – Site B58				
Site Reference	B58	**ASC Name**	Mottled-Sodic Eutrophic Brown Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778164
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416328



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 5/3) Silty Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.25	Bleached very pale brown (Munsell 10YR 7/3) Silty Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.50	Brown (Munsell 7.5YR 4/4) Silty Clay with strong pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Few fine roots and poorly drained. Gradual boundary. 40% distinct grey mottling.
B22	0.50+	Dark Brown (Munsell 7.5YR 3/2) Silty Clay Loam with strong pedality. Moderately alkaline pH, slightly saline and sodic. Nil coarse fragments. Very few roots and poorly drained. 30% distinct orange mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	6.2	Slightly Acidic	1.2	Non sodic
0.15 – 0.25	0.5	Non-saline	6.5	Slightly Acidic	1.1	Non sodic
0.30 – 0.40	1.1	Non-saline	8.0	Moderately Alkaline	2.7	Non sodic
0.65 – 0.75	3.3	Slightly saline	8.3	Moderately Alkaline	8.1	Sodic

Site Description – Site B59				
Site Reference	B59	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778576
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416127



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.15 – 0.35	Yellowish red (Munsell 5YR 4/6) Heavy Clay with strong pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
B22	0.35 – 0.55	Yellowish brown (Munsell 10YR 5/6) Heavy Clay with strong pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and moderately drained.
CB	0.55	Transition horizon to bedrock dominated by weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.7	Moderately Acidic	0.7	Non sodic
0.15 – 0.25	0.2	Non-saline	6.9	Neutral	0.5	Non sodic
0.35 – 0.45	0.8	Non-saline	8.3	Moderately Alkaline	0.9	Non sodic

Site Description – Site B60				
Site Reference	B60	**ASC Name**	Haplic Eutrophic Red Chromosol (BFLOVNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778614
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416525



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.08	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
A2	0.08 – 0.15	Strong brown (Munsell 7.5YR 5/6) Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
B2	0.15 – 0.65	Yellowish-red (Munsell 5YR 4/6) Heavy Clay with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and moderately drained.
C	0.65	Weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.08	0.5	Non-saline	5.9	Moderately Acidic	0.7	Non sodic
0.08 – 0.15	0.2	Non-saline	6.2	Slightly Acidic	0.4	Non sodic
0.20 – 0.30	0.1	Non-saline	5.9	Moderately Acidic	0.7	Non sodic

Site Description – Site B61				
Site Reference	B61	**ASC Name**	Haplic Eutrophic Brown Chromosol (BELOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778241
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416780



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 7.5YR 5/4) Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. 30% coarse fragments 10 – 30mm. Many fine roots and well drained. Clear boundary.
B21	0.15 – 0.50	Strong brown (Munsell 7.5 YR 4/6) Heavy Clay with strong pedality. Mildly alkaline pH, non-saline and non-sodic. 10% coarse fragments 10 – 30mm. Very few fine roots and imperfectly drained. Gradual boundary.
B22	0.50 – 0.60	Strong brown (Munsell 7.5 YR 4/6) Medium Clay with strongly pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and imperfectly drained.
C	0.60	Weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	6.2	Slightly Acidic	0.4	Non sodic
0.15 – 0.25	0.2	Non-saline	7.5	Mildly Alkaline	1.0	Non sodic
0.50 – 0.60	0.3	Non-saline	7.9	Moderately Alkaline	1.8	Non sodic

Site Description – Site B62				
Site Reference	B62	**ASC Name**	Haplic Eutrophic Black Dermosol (BELLWNR)	
Average Slope	0%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Floodplain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 777949
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417072



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very dark brown (Munsell 7.5YR 2.5/2) Silty Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.10 – 0.40	Very dark brown (Munsell 10YR 2/2) Sandy Loam with moderate pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and well drained. Clear boundary.
B22	0.40+	Dark brown to very dark grayish brown (Munsell 10YR 3/3 to 10YR 3/2) Sandy Loam to Loam with weak pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and well drained.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.6	Non-saline	6.2	Slightly Acidic	2.1	Non sodic
0.20 – 0.30	0.6	Non-saline	6.8	Neutral	0.9	Non sodic
0.40 – 0.50	0.9	Non-saline	7.9	Moderately Alkaline	2.7	Non sodic
0.65 – 0.75	1.6	Non-saline	8.3	Moderately Alkaline	5.8	Non sodic

Site Description – Site B63				
Site Reference	B63	**ASC Name**	Haplic Eutrophic Brown Dermosol (BELLTNR)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778617
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415740



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.05	Brown (Munsell 7.5YR 5/4) Loam with strong pedality. Neutral pH, non-saline and non-sodic. 10% coarse fragments 30 – 150mm. Many fine roots and well drained. Clear boundary.
B	0.05 – 0.35	Strong brown (Munsell 7.5YR 4/6) Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. 30% coarse fragments 30 – 150mm. Very few fine roots and imperfectly drained.
C	0.20 – 1.00	Parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.05	1.7	Non-saline	6.7	Neutral	0.3	Non sodic
0.10 – 0.20	0.3	Non-saline	6.5	Slightly Acidic	0.4	Non sodic

Site Description – Site B64				
Site Reference	B64	**ASC Name**	Bleached-Mottled Eutrophic Brown Chromosol (BELOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779015
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415849



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Yellowish-brown (Munsell 10YR 5/4) Loamy Sand with weak pedality. Strongly acidic pH, slightly saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.10 – 0.35	Bleached very pale brown (Munsell 10YR 7/3) apedal Loam. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B21	0.35 – 0.60	Strong brown (Munsell 7.5YR 5/8) Light-medium Clay with strong pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Poorly drained. Gradual boundary. 30% distinct yellow mottling.
B22	0.60+	Brownish-yellow (Munsell 10YR 6/6) Sandy Clay Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and poorly drained. 40% distinct red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	3.6	Slightly saline	5.5	Strongly Acidic	1.7	Non sodic
0.20 – 0.30	0.1	Non-saline	5.8	Moderately Acidic	2.3	Non sodic
0.40 – 0.50	0.3	Non-saline	7.3	Neutral	2.9	Non sodic
0.65 – 0.75	0.5	Non-saline	6.2	Slightly Acidic	5.1	Non sodic

Site Description – Site B65				
Site Reference	B65	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 779023
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416207



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.35	Strong brown (Munsell 7.5YR 4/6) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.35 – 0.75	Yellowish-red to red (Munsell 5YR 4/6 to 2.5YR 4/8) Light-medium Clay to Sandy Clay with moderate pedality. Neutral to moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Imperfectly drained. 30% distinct grey mottling.
C	0.75	Weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.7	Moderately Acidic	1.2	Non sodic
0.20 – 0.30	0.2	Non-saline	5.7	Moderately Acidic	1.2	Non sodic
0.35 – 0.45	0.2	Non-saline	6.9	Neutral	1.1	Non sodic
0.65 – 0.75	0.8	Non-saline	5.9	Moderately Acidic	2.3	Non sodic

Site Description – Site B66				
Site Reference	B66	**ASC Name**	Bleached-Sodic Eutrophic Red Chromosol (BELOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779346
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415890



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 5/3) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.20	Bleached very pale brown (Munsell 10YR 7/3) Loam with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Few fine roots and poorly drained. Clear boundary.
B21	0.20 – 0.45	Red (Munsell 2.5YR 4/8) Heavy Clay with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. 20% distinct yellow mottling. 20% distinct grey mottling. Gradual boundary.
B22	0.45 – 0.65	Yellowish-brown (Munsell 10YR 5/6) Medium Clay with weak pedality. Strongly alkaline pH, non-saline and sodic. Nil coarse fragments. No roots and poorly drained. 30% distinct grey mottling.
C	0.65	Weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.9	Moderately Acidic	0.8	Non sodic
0.10 – 0.20	0.3	Non-saline	6.3	Slightly Acidic	1.2	Non sodic
0.20 – 0.30	0.7	Non-saline	6.2	Slightly Acidic	5.5	Non sodic
0.50 – 0.60	1.5	Non-saline	8.7	Strongly Alkaline	7.5	Sodic

Site Description – Site B67				
Site Reference	B67	**ASC Name**	Bleached-Mottled Eutrophic Red Chromosol (BEKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779422
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415617



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Sandy Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.25	Bleached pink (Munsell 5YR 8/4) Loamy Sand with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.55	Red (Munsell 2.5YR 4/8) Medium Clay with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. 10% distinct yellow mottling. 10% distinct grey mottling. Gradual boundary.
B22	0.55 +	Yellowish-red (Munsell 5YR 5/8) Light Clay with moderate pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 40% distinct orange mottling, 20% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.7	Non-saline	5.6	Moderately Acidic	0.7	Non sodic
0.15 – 0.25	0.4	Non-saline	5.8	Moderately Acidic	1.2	Non sodic
0.30 – 0.40	0.3	Non-saline	5.8	Moderately Acidic	3.4	Non sodic
0.65 – 0.75	0.4	Non-saline	6.2	Slightly Acidic	5.6	Non sodic

Site Description – Site B68				
Site Reference	B68	**ASC Name**	Bleached-Mottled Eutrophic Brown Chromosol (BGLOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779719
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415655



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Brown (Munsell 10YR 5/3) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.12 – 0.25	Bleached white (Munsell 10YR 8/1) Loamy Sand with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B2	0.25 – 0.65	Yellowish-brown to brown (Munsell 10YR 5/4 to 10YR 5/3) Light-medium Clay to Sandy Clay Loam with strong pedality. Mildly to moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Poorly drained. 30% distinct grey mottling.
BC	0.65+	Transition horizon to bedrock dominated by weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.3	Non-saline	5.6	Moderately Acidic	1.1	Non sodic
0.15 – 0.25	0.6	Non-saline	5.9	Moderately Acidic	1.4	Non sodic
0.30 – 0.40	0.3	Non-saline	7.5	Mildly Alkaline	0.8	Non sodic
0.50 – 0.60	0.4	Non-saline	7.9	Moderately Alkaline	1.1	Non sodic

Site Description – Site B69				
Site Reference	B69	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified BSAL	X: 779839
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415486



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/3) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.15 – 0.40	Brown (Munsell 7.5YR 4/4) apedal Loam. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B21	0.40 – 0.65	Red (Munsell 2.5YR 4/8) Light Clay with moderate pedality. Mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. 20% faint yellow mottling. Gradual boundary.
B22	0.65+	Yellowish-brown (Munsell 10YR 5/6) Clay Loam with moderate pedality. Strongly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and imperfectly drained. 30% faint grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.6	Non-saline	5.9	Moderately Acidic	0.2	Non sodic
0.20 – 0.30	0.3	Non-saline	6.6	Neutral	0.4	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	1.3	Non sodic
0.65 – 0.75	1.0	Non-saline	8.5	Strongly Alkaline	0.9	Non sodic

Site Description – Site B70				
Site Reference	B70	**ASC Name**	Sodic Eutrophic Red Chromosol (BGMOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780127
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415405



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/3) Clay Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 10 – 50mm. Many fine roots and well drained. Clear boundary.
B21	0.10 – 0.40	Dark red (Munsell 2.5YR 3/6) Heavy Clay with strong pedality. Mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Gradual boundary.
B22	0.40 – 0.75	Red to yellowish-brown (Munsell 2.5YR 4/8 to 10YR 5/4) Heavy Clay with strong pedality. Strongly to moderately acidic pH, slightly to moderately saline and sodic at depth. 20% coarse fragments 10 – 50mm. No roots and moderately drained.
C	0.75	Parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.6	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.6	Non-saline	7.7	Mildly Alkaline	1.4	Non sodic
0.40 – 0.50	2.5	Slightly saline	8.6	Strongly Alkaline	4.4	Non sodic
0.65 – 0.75	4.6	Moderately saline	8.92	Strongly Alkaline	6.3	Sodic

Site Description – Site B71				
Site Reference	B71	**ASC Name**	Bleached-Mottled Eutrophic Red Chromosol (BGLOVNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780131
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415037



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Pale brown (Munsell 10YR 6/3) Sandy Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 20 – 50mm. Many fine roots and well drained. Gradual boundary.
A2	0.10 – 0.25	Bleached pinkish grey (Munsell 7.5YR 7/2) Sandy Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 80% coarse fragments 20 – 50mm. Very few fine roots and poorly drained. Clear boundary.
B2	0.25 – 0.60	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with moderate pedality. Neutral pH, non-saline and non-sodic. 30% coarse fragments 10 – 30mm. Very few roots and poorly drained. 30% distinct grey mottling, 10% distinct orange mottling.
BC	0.60	Transition horizon to bedrock dominated by weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.9	Moderately Acidic	0.5	Non sodic
0.10 – 0.20	0.2	Non-saline	5.7	Moderately Acidic	0.7	Non sodic
0.35 – 0.45	0.2	Non-saline	6.6	Neutral	0.4	Non sodic

Site Description – Site B72				
Site Reference	B72	**ASC Name**	Bleached-Sodic Eutrophic Grey Chromosol (BGLOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780281
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414721



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very pale brown (Munsell 10YR 7/3) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Many fine roots and well drained. Gradual boundary.
A2	0.10 – 0.40	Bleached white (Munsell 7.5YR 8/1) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B2	0.40 +	Yellowish Brown (Munsell 5YR 7/1 to 10YR 6/4) Medium Clay to Light Clay with moderate pedality. Slightly acidic to neutral pH, non-saline and sodic. Nil coarse fragments. No roots and poorly drained. 30% distinct grey mottling, 30% distinct red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.6	Moderately Acidic	1.4	Non sodic
0.20 – 0.30	0.2	Non-saline	6.2	Slightly Acidic	4.1	Non sodic
0.40 – 0.50	0.4	Non-saline	6.3	Slightly Acidic	4.7	Non sodic
0.65 – 0.75	0.7	Non-saline	6.6	Neutral	7.4	Sodic

Site Description – Site B73				
Site Reference	B73	**ASC Name**	Bleached-Mottled Eutrophic Yellow Chromosol (BFLMWNR)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779895
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414050



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 7.5YR 4/3) Sandy Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 20% coarse fragments 10 – 50mm. Many fine roots and well drained. Gradual boundary.
A2	0.15 – 0.45	Bleached very pale brown (Munsell 10YR 7/3) Sandy Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. 30% coarse fragments 10 – 100mm. Very few fine roots and poorly drained. Clear boundary.
B2	0.45+	Light yellowish-brown (Munsell 10YR 6/4) Clay Loam with moderate pedality. Mildly alkaline to strongly acidic pH, non- saline and non-sodic. 20% coarse fragments 10 – 100mm. No roots and poorly drained. 30% distinct grey mottling, 30% distinct red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.6	Moderately Acidic	0.6	Non sodic
0.25 – 0.35	0.2	Non-saline	6.3	Slightly Acidic	0.9	Non sodic
0.45 – 0.55	0.4	Non-saline	7.3	Mildly Alkaline	1.2	Non sodic
0.65 – 0.75	0.2	Non-saline	5.5	Strongly Acidic	2.6	Non sodic

Site Description – Site B74				
Site Reference	B74	**ASC Name**	Mottled Eutrophic Brown Chromosol (BFLOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 780525
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413170



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 10YR 4/3) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.15 – 0.55	Brown (Munsell 7.5YR 5/4) Loam with weak pedality. Neutral to moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.55 +	Yellowish brown (Munsell 10YR 5/4) Light Clay with moderate pedality. Moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 20% distinct red mottling, 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.9	Moderately Acidic	1.3	Non sodic
0.20 – 0.30	0.4	Non-saline	7.2	Neutral	5.1	Non sodic
0.40 – 0.50	1.0	Non-saline	7.9	Moderately Alkaline	5.0	Non sodic
0.65 – 0.75	0.6	Non-saline	8.0	Moderately Alkaline	4.4	Non sodic

Site Description – Site B75				
Site Reference	B75	**ASC Name**	Bleached-Mottled Eutrophic Brown Chromosol (BFLOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 780506
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413643



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.25	Bleached Light gray (Munsell 5YR 7/1) Silty Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and poorly drained. Clear boundary.
B21	0.25 – 0.60	Yellowish-brown to light yellowish-brown (Munsell 10YR 5/4 to 10YR 6/4) Heavy Clay to Light Clay with moderate pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and poorly drained. 30% distinct grey mottling, 10% distinct red mottling. Gradual boundary.
B22	0.60 +	Light yellowish-brown (Munsell 10YR 6/4) Clay Loam with moderate pedality. Mildly alkaline pH, non- saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 40% distinct grey mottling, 10% distinct yellow mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.6	Moderately Acidic	2.8	Non sodic
0.25 – 0.35	0.2	Non-saline	6.8	Neutral	1.9	Non sodic
0.40 – 0.50	0.4	Non-saline	7.2	Neutral	3.8	Non sodic
0.65 – 0.75	0.5	Non-saline	7.7	Mildly Alkaline	4.4	Non sodic

Site Description – Site B76				
Site Reference	B76	**ASC Name**	Bleached-Mottled Eutrophic Yellow Chromosol (BGLOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780850
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413750



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark yellowish-brown (Munsell 10YR 4/4) Loam with strong pedality. Slightly acidic pH, non-saline and non-sodic. 20% coarse fragments 5mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.20	Bleached very pale brown (Munsell 10YR 7/3)) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.20 – 1.00	Light yellowish-brown to brownish-yellow (Munsell 10YR 6/4 to 10YR 6/6) Silty Clay to Silty Clay Loam with moderate pedality. Neutral to moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 20% distinct grey mottling. Clear boundary.
C	0.75+	Weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.4	Non-saline	6.4	Slightly Acidic	3.0	Non sodic
0.10 – 0.20	0.3	Non-saline	6.3	Slightly Acidic	2.4	Non sodic
0.30 – 0.40	0.3	Non-saline	6.9	Neutral	0.6	Non sodic
0.65 – 0.75	0.4	Non-saline	8.1	Moderately Alkaline	0.5	Non sodic

Site Description – Site B77				
Site Reference	B77	**ASC Name**	Bleached-Mottled Eutrophic Yellow Chromosol (BFLOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 780570
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414000



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 7.5YR 4/3) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.15 – 0.45	Bleached very pale brown (Munsell 10YR 7/4) Loam with weak pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.45+	Light yellowish-brown to yellowish-brown (Munsell 10YR 6/4 to 10YR 5/8) Light-medium Clay to Sandy Clay Loam with moderate pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 30% distinct grey mottling. 10% distinct red mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.7	Moderately Acidic	5.0	Non sodic
0.20 – 0.30	0.2	Non-saline	6.7	Neutral	3.2	Non sodic
0.45 – 0.55	0.2	Non-saline	7.1	Neutral	2.3	Non sodic
0.65 – 0.75	0.3	Non-saline	7.1	Neutral	3.1	Non sodic

Site Description – Site B78				
Site Reference	B78	**ASC Name**	Bleached-Mottled Eutrophic Grey Chromosol (BFLMWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 780670
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414460



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 10YR 4/3) Loam with moderate pedality. Moderately acidic pH, non-saline and non-sodic. 10% coarse fragments 10 – 50mm. Many fine roots and well drained. Clear boundary.
A21	0.15 – 0.40	Bleached very pale brown (Munsell 10YR 7/3) Loamy Sand with weak pedality. Neutral pH, non-saline and non-sodic. 30% coarse fragments 10 – 50mm. Very few fine roots and imperfectly drained. Gradual boundary.
A22	0.40 – 0.70	Bleached very pale brown (Munsell 10YR 7/4) apedal Sandy Loam. Neutral pH, non-saline and non-sodic. 80% coarse fragments 10 – 50mm. No roots and poorly drained. Clear boundary.
B2	0.70+	Pale brown (Munsell 10YR 6/3) Clay Loam with moderate pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. No roots and poorly drained. 40% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.7	Moderately Acidic	4.3	Non sodic
0.15 – 0.25	0.4	Non-saline	7.1	Neutral	3.4	Non sodic
0.40 – 0.50	0.3	Non-saline	7.2	Neutral	2.7	Non sodic
0.70 – 0.75	0.3	Non-saline	7.0	Neutral	5.1	Non sodic

Site Description – Site B79				
Site Reference	B79	**ASC Name**	Haplic Eutrophic Red Chromosol (BEMOVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 780240
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415806



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/3) Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.10 – 0.55	Yellowish-red to strong brown (Munsell 5YR 4/6 to 7.5YR 5/6) Medium Clay with strong pedality. Neutral to moderately alkaline pH, non-saline and non-sodic. Nil coarse fragments. Few roots and imperfectly drained. Clear boundary.
B22	0.55 – 0.80	Light gray (Munsell 10YR 7/1) Clay Loam with moderate pedality. Very strongly alkaline pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 50% distinct grey mottling.
C	0.80	Parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	5.8	Moderately Acidic	0.7	Non sodic
0.20 – 0.30	0.2	Non-saline	6.7	Neutral	0.3	Non sodic
0.45 – 0.55	0.6	Non-saline	8.2	Moderately Alkaline	0.6	Non sodic
0.65 – 0.75	0.9	Non-saline	9.0	Very Strongly Alkaline	0.3	Non sodic

Site Description – Site B80				
Site Reference	B80	**ASC Name**	Haplic Eutrophic Red Chromosol (BFLOWNR)	
Average Slope	0%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 779750
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415939



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with strong pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
B21	0.10 – 0.50	Yellowish-red to strong brown (Munsell 5YR 4/6 to 7.5YR 4/6) Heavy Clay to Medium Clay with strong pedality. Neutral to mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Common roots and imperfectly drained. Gradual boundary.
B22	0.50+	Brownish-yellow (Munsell 10YR 6/6) Silty Clay with strong pedality. Mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Very few roots and imperfectly drained. 30% faint grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.3	Strongly Acidic	0.5	Non sodic
0.20 – 0.30	0.2	Non-saline	6.9	Neutral	0.3	Non sodic
0.40 – 0.50	0.2	Non-saline	7.3	Mildly Alkaline	0.5	Non sodic
0.65 – 0.75	0.3	Non-saline	7.5	Mildly Alkaline	0.5	Non sodic

Site Description – Site B86				
Site Reference	B86	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 779740
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416327



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Strong brown (Munsell 7.5YR 4/6) Loam with moderate pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.35	Strong brown (Munsell 7.5YR 5/8) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B21	0.35 – 0.60	Red (Munsell 2.5YR 4/8) Light-medium Clay with moderate pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 30% faint yellow mottling. Gradual boundary.
B22	0.60+	Yellowish-red (Munsell 5YR 4/6) Clay Loam with moderate pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. No roots and imperfectly drained. 40% distinct red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.2	Strongly Acidic	1.1	Non sodic
0.20 – 0.30	0.2	Non-saline	6.2	Slightly Acidic	0.9	Non sodic
0.40 – 0.50	0.4	Non-saline	6.0	Moderately Acidic	1.7	Non sodic
0.65 – 0.75	0.4	Non-saline	6.6	Neutral	4.7	Non sodic

Site Description – Site B87				
Site Reference	B87	**ASC Name**	Haplic Eutrophic Brown Chromosol (BFLOUNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 779314
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416316



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Strong brown (Munsell 7.5YR 5/6) Silty Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
B2	0.15 – 0.45	Strong brown (Munsell 7.5YR 4/6 to 7.5YR 5/6) Silty Clay with strong pedality. Neutral to mildly alkaline pH, non-saline and non-sodic. Nil coarse fragments. Common fine roots and moderately drained. Clear boundary.
BC	0.45	Transition horizon to bedrock dominated by weathered parent material to hard unweathered parent material at 0.60m.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.6	Moderately Acidic	0.7	Non sodic
0.15 – 0.25	0.3	Non-saline	6.9	Neutral	1.0	Non sodic
0.35 – 0.45	0.4	Non-saline	7.5	Mildly Alkaline	1.6	Non sodic

Site Description – Site B88				
Site Reference	B88	**ASC Name**	Bleached-Sodic Eutrophic Yellow Dermosol (BELMWWR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Drainage Flat	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 779082
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416667



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very dark grayish brown (Munsell 10YR 3/2) Silty Loam with strong pedality. Moderately alkaline pH, extremely saline and sodic. Nil coarse fragments. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.20	Bleached very pale brown (Munsell 10YR 7/3) Silty Loam with moderate pedality. Strongly alkaline pH, slightly saline and sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.20+	Light red (Munsell 2.5YR 6/6) Clay Loam to Loam with strong pedality. Strongly alkaline pH, moderately to slightly saline and sodic. Nil coarse fragments. No roots and poorly drained. 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	19.9	Extremely saline	8.3	Moderately Alkaline	17.4	Sodic
0.10 – 0.20	4.0	Slightly saline	8.6	Strongly Alkaline	17.0	Sodic
0.30 – 0.40	4.3	Moderately saline	8.5	Strongly Alkaline	12.5	Sodic
0.65 – 0.75	3.9	Slightly saline	8.7	Strongly Alkaline	11.1	Sodic

Site Description – Site B89				
Site Reference	B89	**ASC Name**	Eutrophic Mottled-Subnatric Brown Sodosol (BEKOUNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779626
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416724



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Light brownish-gray (Munsell 10YR 6/2) Loamy Sand with weak pedality. Neutral pH, slightly saline and non-sodic. 20% coarse fragments 10 – 20mm. Many fine roots and well drained. Clear boundary.
A2	0.10 – 0.25	Pale brown (Munsell 10YR 6/3) apedal Loamy Sand. Mildly alkaline pH, non-saline and non-sodic. 20% coarse fragments 10 – 20mm. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.25 – 0.45	Yellowish-brown (Munsell 10YR 5/4) Light-medium Clay with moderate pedality. Strongly alkaline pH, moderately saline and sodic. Nil coarse fragments. Very few roots and imperfectly drained. 20% faint grey mottling.
C	0.45	Parent material

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	2.2	Slightly saline	6.5	Neutral	5.6	Non sodic
0.10 – 0.20	0.7	Non-saline	7.5	Mildly Alkaline	5.3	Non sodic
0.30 – 0.40	4.3	Moderately saline	8.6	Strongly Alkaline	11.6	Sodic

Site Description – Site B90				
Site Reference	B90	**ASC Name**	Haplic Eutrophic Brown Chromosol (BFKOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779400
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416595



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark yellowish-brown (Munsell 10YR 4/4) Loamy Sand with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and well drained. Gradual boundary.
A2	0.15 – 0.40	Light yellowish-brown (Munsell 10YR 6/4) Loam with weak pedality. Slightly acidic pH, non-saline and non-sodic. Nil coarse fragments. Common fine roots and well drained. Gradual boundary.
B2	0.40 – 0.60	Yellowish-brown (Munsell 10YR 5/8) Light Clay with weak pedality. Slightly acidic pH, non-saline and non-sodic. 40% coarse fragments 30 – 100mm. No roots and well drained.
C	0.60+	Parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	6.0	Slightly Acidic	2.2	Non sodic
0.20 – 0.30	0.2	Non-saline	6.3	Slightly Acidic	1.6	Non sodic
0.40 – 0.50	0.2	Non-saline	6.5	Slightly Acidic	1.5	Non sodic

Site Description – Site B95				
Site Reference	B95	**ASC Name**	Haplic Eutrophic Red Dermosol (BFLOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Crest	**BSAL Site Status**	Verified Non-BSAL	X: 778331
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6417206



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.20	Strong brown (Munsell 7.5YR 4/6) Loam with weak pedality. Moderately acidic pH, non-saline and non-sodic. 30% coarse fragments 100 – 300mm. Many fine roots and well drained. Clear boundary.
B	0.20 +	Yellowish-red (Munsell 5YR 5/8 to 5YR 4/6) Loam to Clay Loam with moderate pedality. Strongly acidic to moderately acidic pH, non- saline and non-sodic. 30% coarse fragments 100 – 300mm. Common roots and well drained.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	5.9	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.4	Non-saline	5.3	Strongly Acidic	1.5	Non sodic
0.50 – 0.60	0.3	Non-saline	5.9	Moderately Acidic	4.2	Non sodic

Site Description – Site B108				
Site Reference	B108	**ASC Name**	Basic Lithic Leptic Tenosol (BFKKUNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Low	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 777424
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415199



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Very dark brown (Munsell 7.5YR 2.5/2) Loamy Sand with moderate pedality. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
A2	0.15 – 0.30	Dark brown (Munsell 7.5YR 3/4) apedal Sand. Strongly acidic pH, non-saline and non-sodic. Nil coarse fragments. Common fine roots and moderately drained.
C	0.30	Parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	5.2	Strongly Acidic	1.5	Non sodic
0.20 – 0.30	0.4	Non-saline	5.2	Strongly Acidic	1.2	Non sodic

Site Description – Site B119				
Site Reference	B119	**ASC Name**	Bleached-Sodic Eutrophic Brown Chromosol (BELOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Drainage Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 777803
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417101



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 7.5YR 4/3) Silty Loam with strong pedality. Moderately acidic pH, non-saline and non-sodic. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
A21	0.15 – 0.30	Bleached very pale brown (Munsell 10YR 7/4) Silty Loam with weak pedality. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and moderately drained. Clear boundary.
A22	0.30 – 0.45	Bleached very pale brown (Munsell 10YR 8/4) apedal Silty Loam. Neutral pH, non-saline and non-sodic. Nil coarse fragments. Very few fine roots and imperfectly drained. Clear boundary.
B2	0.45+	Dark yellowish brown (Munsell 10YR 4/4) Light Medium Clay to Light Clay with strong pedality. Neutral pH, slightly saline and sodic. Nil coarse fragments. No roots and imperfectly drained. 20% faint orange and 20% faint grey mottling.

Sample Depth	ECe		$pH_{(1:5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.8	Moderately Acidic	1.8	Non sodic
0.20 – 0.30	0.3	Non-saline	6.7	Neutral	1.3	Non sodic
0.50 – 0.60	0.6	Non-saline	7.3	Neutral	5.8	Non sodic
0.65 – 0.75	2.1	Slightly saline	7.0	Neutral	10.7	Sodic

Site Description – Site B136				
Site Reference	B136	**ASC Name**	Eutrophic Subnatric Yellow Sodosol (BFKOWNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780186
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414301



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Light gray (Munsell 10YR 7/2) Loamy Sand with strong pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
A2	0.10 – 0.40	Bleached very pale brown (Munsell 10YR 7/3) apedal Loamy Sand. Moderately to slightly acidic, non-sodic and non-saline. Nil coarse fragments. Few fine roots and poorly drained. Clear boundary.
B2	0.40+	Yellowish-brown to Light yellowish-brown (Munsell 10YR 5/4 to 2.5Y 6/4) Light Medium Clay to Heavy Clay with moderate pedality. Strongly acidic, sodic and non-saline. Nil coarse fragments. No roots and poorly drained. 30% distinct orange mottling, 20% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.7	Moderately Acidic	0.6	Non sodic
0.20 – 0.30	0.3	Non-saline	5.7	Moderately Acidic	1.1	Non sodic
0.30 – 0.40	0.3	Non-saline	6.1	Slightly Acidic	3.6	Non sodic
0.65 – 0.75	1.2	Non-saline	5.4	Strongly Acidic	13.2	Sodic

Site Description – Site B137				
Site Reference	B137	**ASC Name**	Bleached-Sodic Eutrophic Grey Dermosol (BELOW)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780204
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413894



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Light brownish-gray (Munsell 10YR 6/2) Silty Loam with strong pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
A2	0.15 – 0.30	Bleached very pale brown (Munsell 10YR 7/3) Silty Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B2	0.30+	Gray (Munsell 7.5YR 6/1) Loam to Clay Loam with strong pedality. Nil coarse fragments. Mildly alkaline, sodic and non-saline. No roots and poorly drained. 30% distinct orange mottling, 30% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	6.2	Slightly Acidic	3.5	Non sodic
0.20 – 0.30	0.3	Non-saline	7.2	Neutral	3.7	Non sodic
0.30 – 0.40	0.6	Non-saline	7.7	Mildly Alkaline	6.6	Sodic
0.65 – 0.75	0.5	Non-saline	7.7	Mildly Alkaline	6.0	Sodic

Site Description – Site B138				
Site Reference	B138	**ASC Name**	Eutrophic Subnatric Grey Sodosol (BFKOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780136
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413506

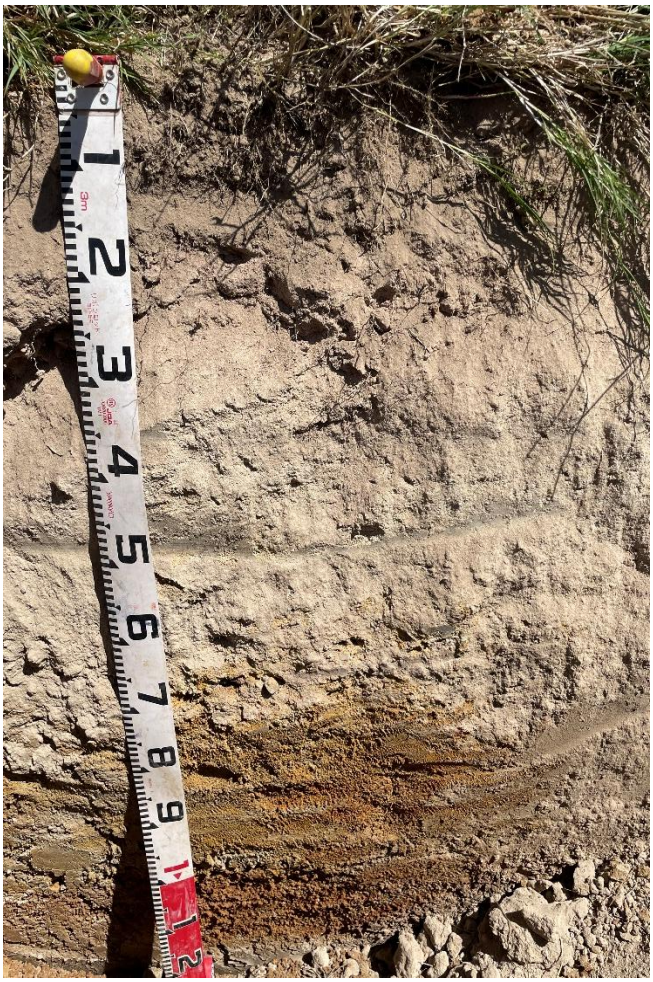


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Brown (Munsell 10YR 5/3) Loam with weak pedality. Slightly acidic, sodic and slightly saline. Nil coarse fragments. Many fine roots and moderately drained. Clear boundary.
A2	0.20 – 0.70	Bleached very pale brown (Munsell 10YR 7/3), apedal. Sandy Loam to Loam Slightly acidic to neutral, sodic and moderately saline to non-saline. Nil coarse fragments. Very few fine roots and poorly drained. Clear boundary.
B2	0.70+	Light Gray (Munsell 10YR 7/2) Sandy Clay with moderate pedality. Nil coarse fragments. Slightly acidic, sodic and slightly saline. No roots and poorly drained. 40% distinct grey mottling, 10% distinct red mottling,

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	2.9	Slightly saline	6.5	Slightly Acidic	21.3	Sodic
0.20 – 0.30	6.2	Moderately saline	6.3	Slightly Acidic	29.7	Sodic
0.30 – 0.40	1.2	Non-saline	7.1	Neutral	20.6	Sodic
0.70 – 0.75	2.9	Slightly saline	6.0	Slightly Acidic	16.5	Sodic

Site Description – Site B144				
Site Reference	B144	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778271
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415722



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/3) Silty Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.30	Strong brown (Munsell 7.5YR 5/6) Clay Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Few fine roots and moderately well drained. Clear boundary.
B2	0.30 – 0.80	Red (Munsell 2.5YR 4/8) Heavy Clay to Medium Clay with strong pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. No roots and imperfectly drained. 20% distinct grey mottling.
BC	0.80 +	Transition horizon to parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.8	Moderately Acidic	0.2	Non sodic
0.20 – 0.30	0.1	Non-saline	6.8	Neutral	1.2	Non sodic
0.40 – 0.50	0.2	Non-saline	7.1	Neutral	2.7	Non sodic
0.65 – 0.75	0.3	Non-saline	7.2	Neutral	4.9	Non sodic

Site Description – Site B145				
Site Reference	B145	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 778150
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417043



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/3) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.30	Yellowish-red (Munsell 5YR 4/6) Sandy Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
B2	0.30 +	Yellowish-red to Brown (Munsell 5YR 5/6 to 7.5YR 5/4) Sandy Clay with moderate pedality. Neutral trending to strongly alkaline, non-sodic and slightly saline at depth. Nil coarse fragments. Very few fine roots and moderately well drained. 20% faint grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	6.4	Slightly Acidic	0.8	Non sodic
0.20 – 0.30	0.3	Non-saline	6.9	Neutral	0.9	Non sodic
0.40 – 0.50	0.8	Non-saline	6.8	Neutral	1.6	Non sodic
0.65 – 0.75	2.8	Slightly saline	8.8	Strongly Alkaline	0.9	Non sodic

Site Description – Site B146				
Site Reference	B146	**ASC Name**	Sodic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 777972
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416841



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark reddish-brown (Munsell 5YR 3/4) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.20 – 0.35	Yellowish-red (Munsell 5YR 4/6) Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
B2	0.35 +	Yellowish-red (Munsell 5YR 5/8) Light Medium Clay to Silty Clay with strong pedality. Neutral, sodic and slightly saline at depth. Nil coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.2	Non-saline	6.3	Slightly Acidic	0.7	Non sodic
0.20 – 0.30	0.2	Non-saline	6.8	Neutral	1.9	Non sodic
0.40 – 0.50	0.4	Non-saline	7.0	Neutral	5.2	Non sodic
0.65 – 0.75	2.6	Slightly saline	7.0	Neutral	13.0	Sodic

Site Description – Site B147				
Site Reference	B147	**ASC Name**	N/A	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	N/A	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 778017
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6417280



Plate 1 – Landscape

Observation Description

Drainage flat: Poorly drained soil

Site Description – Site B148				
Site Reference	B148	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 778162
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417152

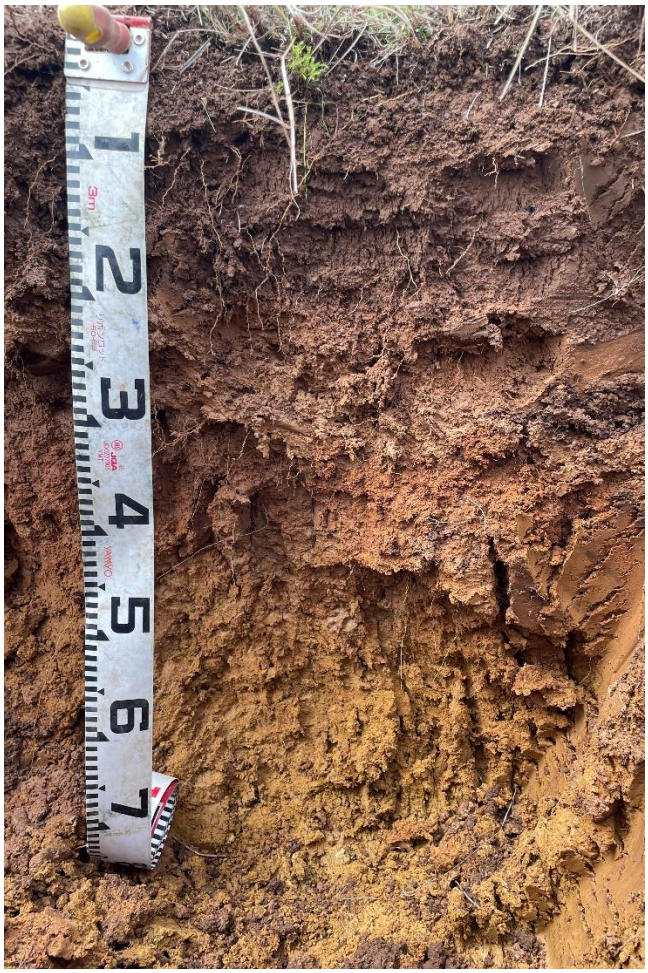


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.20 – 0.35	Yellowish-red (Munsell 5YR 4/6) Loam with weak pedality. Neutral, non-sodic and slightly saline. Nil coarse fragments. Common roots and moderately well drained. Clear boundary.
B21	0.35 – 0.55	Reddish-brown (Munsell 5YR 5/3) Heavy Clay with strong pedality. Neutral trending to mildly alkaline, sodic and non-saline. Nil coarse fragments. No roots and moderately well drained. 10% faint grey mottling. Clear boundary.
B22	0.55 +	Strong brown (Munsell 7.5YR 5/8) Heavy Clay with strong pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. No roots and moderately well drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.7	Neutral	0.4	Non sodic
0.20 – 0.30	2.9	Slightly saline	6.9	Neutral	1.6	Non sodic
0.40 – 0.50	0.8	Non-saline	6.7	Neutral	2.0	Non sodic
0.65 – 0.75	0.1	Non-saline	7.3	Mildly Alkaline	3.6	Non sodic

Site Description – Site B149				
Site Reference	B149	**ASC Name**	Haplic Eutrophic Red Dermosol (BELOW)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778792
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416171



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark reddish-brown (Munsell 5YR 3/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B21	0.20 – 0.40	Reddish-brown (Munsell 5YR 4/4) Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Gradual boundary.
B22	0.40 +	Yellowish-red (Munsell 5YR 5/6) Sandy Clay to Clay Loam with moderate pedality. Mildly alkaline, non-sodic and non-saline. Nil coarse fragments. Very few roots and moderately well drained. No mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.2	Non-saline	6.0	Moderately Acidic	0.8	Non sodic
0.20 – 0.30	0.2	Non-saline	6.6	Neutral	0.9	Non sodic
0.40 – 0.50	0.6	Non-saline	7.0	Neutral	0.7	Non sodic
0.65 – 0.75	0.3	Non-saline	7.6	Mildly Alkaline	0.7	Non sodic

Site Description – Site B150				
Site Reference	B150	**ASC Name**	Haplic Eutrophic Red Dermosol (BELOW)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778944
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416374



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark reddish-brown (Munsell 5YR 3/4) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B21	0.20 – 0.50	Reddish-brown (Munsell 5YR 4/3) Clay Loam with strong pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Gradual boundary.
B22	0.50+	Yellowish-red (Munsell 5YR 5/8) Light Clay to Clay Loam with strong pedality. Neutral, sodic and non-saline. Nil coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.2	Non-saline	6.4	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.1	Non-saline	6.7	Neutral	0.5	Non sodic
0.40 – 0.50	0.1	Non-saline	6.8	Neutral	0.7	Non sodic
0.65 – 0.75	0.2	Non-saline	7.0	Neutral	0.9	Non sodic

Site Description – Site B151				
Site Reference	B151	**ASC Name**	Haplic Eutrophic Red Dermosol (BHOOV)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779280
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416154

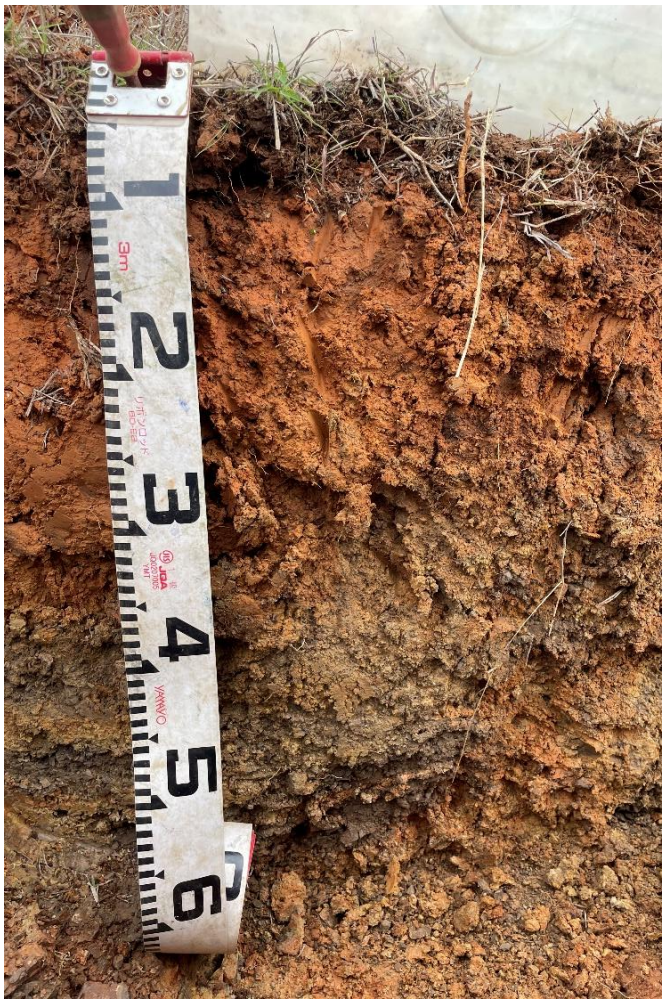


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.05	Red (Munsell 2.5YR 4/6) Medium Clay with moderate pedality. Neutral, non-sodic and non-saline. 20% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
B	0.05 – 0.35	Yellowish-red (Munsell 5YR 5/8) Medium Clay with strong pedality. Moderately alkaline, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Common roots and moderately well drained. Gradual boundary.
BC	0.35 – 0.65	Brown (Munsell 7.5YR 4/3) Light Clay with weak pedality. Strongly alkaline, non-sodic and non-saline. 30% coarse fragments 20 – 50mm. No roots and moderately well drained.
R	0.65	Hard, unweathered parent material.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.05	0.5	Non-saline	6.8	Neutral	1.0	Non sodic
0.20 – 0.30	0.5	Non-saline	8.1	Moderately Alkaline	2.0	Non sodic
0.40 – 0.50	1.2	Non-saline	8.7	Strongly Alkaline	4.3	Non sodic

Site Description – Site B152				
Site Reference	B152	**ASC Name**	Haplic Eutrophic Red Chromosol (BGNOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Rise	**BSAL Site Status**	Verified Non-BSAL	X: 779548
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415903



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.10	Dark reddish-brown (Munsell 5YR 3/4) Silty Loam with strong pedality. Moderately acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
B	0.10 – 0.40	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with strong pedality. Slightly acidic, non-sodic and non-saline. 5% coarse fragments 10 – 20mm. Common roots and moderately well drained. Clear boundary.
BC	0.40 – 0.60	Brown (Munsell 7.5YR 5/4) Silty Clay with moderate pedality. Strongly alkaline, sodic and non-saline. 30% coarse fragments 20 – 50mm. No roots and moderately well drained.
R	0.60	Hard, unweathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.9	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.2	Non-saline	6.1	Slightly Acidic	0.8	Non sodic
0.40 – 0.50	1.3	Non-saline	8.6	Strongly Alkaline	0.7	Non sodic

Site Description – Site B153				
Site Reference	B153	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 779960
Surface Condition	Firm	**Mapped as BSAL**	Yes	Y: 6415573



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/3) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.20	Brown (Munsell 7.5YR 4/4) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Clear boundary.
B21	0.20 – 0.50	Red (Munsell 2.5YR 5/8) Medium Clay with strong pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. No roots and imperfectly drained. 10% distinct grey mottling. 5% calcium carbonate nodules. Gradual boundary.
B22	0.50 +	Light reddish-brown (Munsell 2.5YR 7/4) Clay Loam with strong pedality. Neutral, sodic and non-saline. Nil coarse fragments. No roots and imperfectly drained. 5% calcium carbonate nodules. 10% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.2	Slightly Acidic	0.5	Non sodic
0.10 – 0.20	0.5	Non-saline	6.4	Slightly Acidic	0.7	Non sodic
0.30 – 0.40	0.5	Non-saline	7.3	Neutral	3.3	Non sodic
0.60 – 0.70	0.8	Non-saline	7.2	Neutral	5.2	Non sodic

Site Description – Site B154				
Site Reference	B154	**ASC Name**	Mottled Eutrophic Red Kurosol (BEKMWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 780001
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415811



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/3) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.30	Yellowish-red (Munsell 5YR 4/6) Loamy Sand with weak pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Very few fine roots and moderately well drained. Clear boundary.
B2	0.30+	Red (Munsell 2.5YR 4/6) Clay Loam with strong pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. No roots and imperfectly drained. 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.5	Moderately Acidic	1.0	Non sodic
0.20 – 0.30	0.4	Non-saline	5.8	Moderately Acidic	1.0	Non sodic
0.40 – 0.50	0.3	Non-saline	5.3	Strongly Acidic	1.1	Non sodic
0.65 – 0.75	0.4	Non-saline	5.4	Strongly Acidic	1.7	Non sodic

Site Description – Site B155				
Site Reference	B155	**ASC Name**	Eutrophic Mottled-Subnatric Brown Sodosol (BEKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779864
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416037



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 10YR 3/3) Loamy Sand with moderate pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Bleached very pale brown (Munsell 10YR 7/3) Loamy Sand with weak pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. Very few fine roots and moderately well drained. Clear boundary.
B2	0.25+	Light olive brown to Brownish-yellow (Munsell 2.5Y 5/4 to 10YR 6/6) Medium Clay to Light Medium Clay with strong pedality. Neutral to slightly acidic, sodic and slightly saline. Nil coarse fragments. No roots and poorly drained. 20% distinct red mottling. 20% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.3	Non-saline	5.3	Strongly Acidic	1.4	Non sodic
0.15 – 0.25	0.4	Non-saline	6.4	Slightly Acidic	1.5	Non sodic
0.40 – 0.50	0.9	Non-saline	6.6	Neutral	8.7	Sodic
0.65 – 0.75	2.4	Slightly saline	6.0	Slightly Acidic	13.0	Sodic

Site Description – Site B156				
Site Reference	B156	**ASC Name**	Eutrophic Mottled-Subnatric Brown Sodosol (BGMOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified Non-BSAL	X: 779801
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416498



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very dark gray (Munsell 7.5YR 3/1) Silty Clay Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached very pale brown (Munsell 10YR 7/3) Silty Loam with weak pedality. Neutral, non-sodic and non-saline. 20% coarse fragments 10 – 20mm. Common roots and imperfectly drained. Clear boundary.
B21	0.35 – 0.75	Yellowish-brown (Munsell 10YR 5/8) Heavy Clay with moderate pedality. Mildly alkaline, sodic and moderately saline. 10% coarse fragments 10 20mm. No roots and poorly drained. 20% distinct grey mottling. Gradual boundary.
B22	0.75 +	Light olive brown (Munsell 2.5Y 5/6) Heavy Clay with weak pedality. Moderately alkaline, sodic and highly saline. Nil coarse fragments. No roots and poorly drained. 10% faint grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.7	Non-saline	6.2	Slightly Acidic	2.6	Non sodic
0.20 – 0.30	1.4	Non-saline	6.9	Neutral	6.6	Sodic
0.40 – 0.50	6.7	Moderately saline	7.7	Mildly Alkaline	14.0	Sodic
0.65 – 0.75	9.8	Highly saline	8.0	Moderately Alkaline	16.0	Strongly Sodic

Site Description – Site B157				
Site Reference	B157	**ASC Name**	N/A	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	N/A	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779620
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416689



Plate 1 – Surface outcropping

Observation	Description
Rock Outcropping and Shallow Soils	30% surface rock outcrop and shallow soils over an area of approximately 0.5 ha.

Site Description – Site B158				
Site Reference	B158	**ASC Name**	Haplic Eutrophic Red Dermosol (BENOW)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 779591
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416244



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/3) Silty Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B21	0.10 – 0.35	Reddish-brown (Munsell 5YR 4/3) Clay Loam with strong pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Gradual boundary.
B22	0.35+	Yellowish-brown (Munsell 10YR 5/6) Light Clay to Clay Loam with strong pedality. Neutral to strongly alkaline, non-sodic and non-saline. Nil coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.5	Moderately Acidic	1.1	Non sodic
0.20 – 0.30	0.5	Non-saline	6.3	Slightly Acidic	0.3	Non sodic
0.40 – 0.50	0.6	Non-saline	7.1	Neutral	0.3	Non sodic
0.60 – 0.70	0.9	Non-saline	8.7	Strongly Alkaline	0.2	Non sodic

Site Description – Site B159				
Site Reference	B159	**ASC Name**	Haplic Eutrophic Brown Dermosol (BELMV)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779167
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416435



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.20	Dark brown (Munsell 7.5YR 3/4) Sandy Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B	0.20 – 0.50	Yellowish-brown (Munsell 10YR 5/4) Clay Loam with strong pedality. Neutral, non-sodic and non-saline. 40% coarse fragments 20 – 50mm. Few roots and moderately well drained. Gradual boundary.
C	0.50+	Decomposing parent material.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	6.1	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.4	Non-saline	6.8	Neutral	0.4	Non sodic
0.40 – 0.50	0.2	Non-saline	6.5	Neutral	0.7	Non sodic

Site Description – Site B160				
Site Reference	B160	**ASC Name**	Bleached-Mottled Eutrophic Brown Dermosol (BGMNW)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780497
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413419

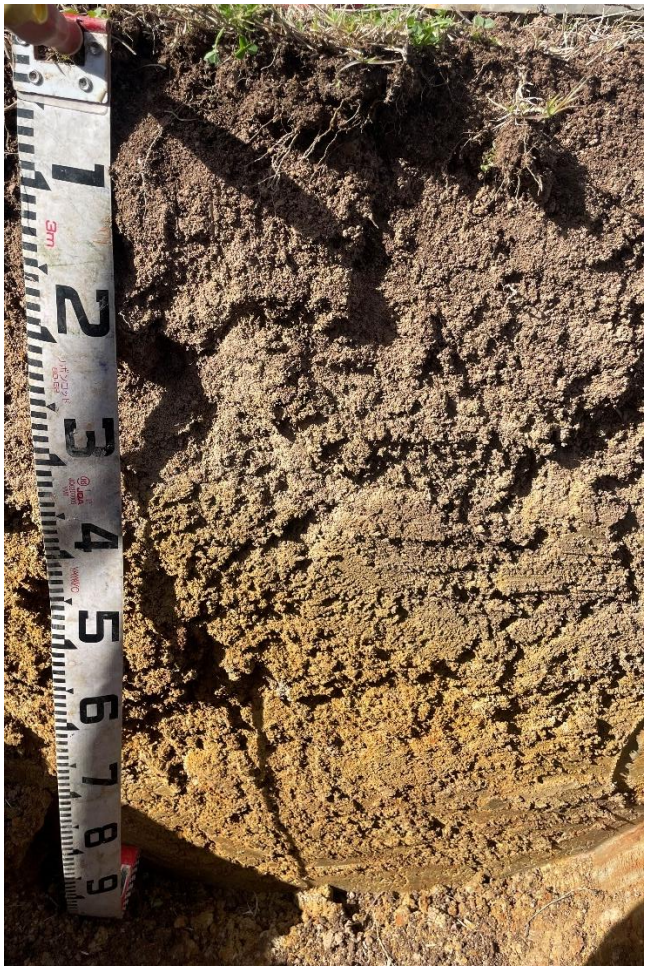


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/4) Silty Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached very pale brown (Munsell 10YR 7/2) Silty Loam with weak pedality. Neutral, non-sodic and non-saline. 20% coarse fragments 10 – 20mm. Common roots and imperfectly drained. Clear boundary.
B2	0.35+	Yellowish-brown to Brownish-yellow (Munsell 10YR 5/8 to 10YR 6/8) Clay Loam with moderate pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. No roots and poorly drained. 20% distinct orange mottling. 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.3	Slightly Acidic	0.8	Non sodic
0.20 – 0.30	0.2	Non-saline	7.1	Neutral	3.8	Non sodic
0.40 – 0.50	0.3	Non-saline	7.2	Neutral	2.7	Non sodic
0.65 – 0.75	0.4	Non-saline	6.8	Neutral	1.9	Non sodic

Site Description – Site B161				
Site Reference	B161	**ASC Name**	Eutrophic Mottled-Subnatric Yellow Sodosol (BGLOWNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780248
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413110



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/2) Loam with weak pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached very pale brown (Munsell 10YR 6/4) Silty Loam with weak pedality. Moderately alkaline, sodic and non-saline. 30% coarse fragments 10 – 20mm. Common roots and imperfectly drained. Clear boundary.
B2	0.35+	Brownish-yellow (Munsell 10YR 6/6) Light-Medium Clay to Light Clay with moderate pedality. Moderately alkaline, sodic and slightly saline. 20% coarse fragments 10 – 30mm. No roots and poorly drained. 20% distinct orange mottling. 40% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	7.1	Neutral	4.3	Non sodic
0.20 – 0.30	0.3	Non-saline	7.9	Moderately Alkaline	12.0	Sodic
0.40 – 0.50	1.4	Non-saline	8.2	Moderately Alkaline	11.0	Sodic
0.65 – 0.75	2.3	Slightly saline	8.4	Moderately Alkaline	12.0	Sodic

Site Description – Site B162				
Site Reference	B162	**ASC Name**	Mottled Eutrophic Yellow Chromosol (BGLOWNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 780543
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412973



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 10YR 3/3) Loam with weak pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.40	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with weak pedality. Neutral, non-sodic and non-saline. 30% coarse fragments 10 – 20mm. Very few roots and imperfectly drained. Clear boundary.
B2	0.40+	Brownish-yellow (Munsell 10YR 6/8) Medium Clay to Light Clay with moderate pedality. Moderately alkaline, non-sodic and non-saline. 20% coarse fragments 10 – 30mm. No roots and imperfectly drained. 10% distinct orange mottling. 10% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.5	Neutral	0.4	Non sodic
0.20 – 0.30	0.2	Non-saline	6.8	Neutral	0.3	Non sodic
0.45 – 0.55	1.0	Non-saline	8.4	Moderately Alkaline	0.2	Non sodic
0.65 – 0.75	0.8	Non-saline	8.4	Moderately Alkaline	0.3	Non sodic

Site Description – Site B163				
Site Reference	B163	**ASC Name**	Eutrophic Mottled-Subnatric Brown Sodosol (BENOWNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780702
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413144



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Very dark grayish brown (Munsell 10YR 3/2) Silty Loam with strong pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.40	Bleached very pale brown (Munsell 10YR 7/2) Silty Loam with weak pedality. Mildly alkaline, sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. Clear boundary.
B2	0.40+	Yellowish-brown (Munsell 10YR 5/8) Light-medium Clay with moderate pedality. Strongly alkaline, sodic and non-saline. Nil coarse fragments. No roots and poorly drained. 40% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	6.3	Slightly Acidic	1.7	Non sodic
0.20 – 0.30	0.3	Non-saline	7.8	Mildly Alkaline	6.5	Marginally Sodic
0.40 – 0.50	1.1	Non-saline	8.6	Strongly Alkaline	13.0	Sodic
0.65 – 0.75	1.3	Non-saline	8.6	Strongly Alkaline	12.0	Sodic

Site Description – Site B164				
Site Reference	B164	**ASC Name**	Bleached-Mottled Eutrophic Brown Dermosol (BEMNW)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 780760
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413412



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Very dark brown (Munsell 10YR 7/2) Silty Loam with moderate pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A21	0.12 – 0.25	Bleached very pale brown (Munsell 10YR 7/2) Silty Loam with weak pedality. Moderately alkaline, non-sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. Clear boundary.
A22	0.25 – 0.40	Yellowish brown (Munsell 10YR 5/4) Clay Loam with weak pedality. Strongly alkaline, non-sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. Clear boundary.
B2	0.40+	Brownish-yellow (Munsell 10YR 6/6) Clay Loam with moderate pedality. Strongly alkaline, non-sodic and non-saline. Nil coarse fragments. No roots and poorly drained. 30% distinct orange mottling. 20% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	7.3	Neutral	0.6	Non sodic
0.15 – 0.25	0.3	Non-saline	7.9	Moderately Alkaline	2.5	Non sodic
0.40 – 0.50	1.0	Non-saline	8.6	Strongly Alkaline	2.9	Non sodic
0.65 – 0.75	1.0	Non-saline	8.8	Strongly Alkaline	3.0	Non sodic

Site Description – Site B165				
Site Reference	B165	**ASC Name**	Haplic Eutrophic Brown Dermosol (BEKOW)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778213
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414636



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark brown (Munsell 7.5YR 3/3) Loamy Sand with moderate pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.20 – 0.55	Yellowish-brown (Munsell 10YR 5/4 to 10YR 5/6) Loam to Clay Loam with weak pedality. Neutral to moderately alkaline, non-sodic and non-saline. Nil coarse fragments. Very few fine roots and moderately well drained. Clear boundary.
B2	0.55+	Light olive brown (Munsell 2.5Y 5/6) Silty Clay with strong pedality. Strongly alkaline, non-sodic and non-saline. Nil coarse fragments. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.5	Strongly Acidic	0.8	Non sodic
0.20 – 0.30	0.2	Non-saline	6.9	Neutral	1.1	Non sodic
0.40 – 0.50	0.5	Non-saline	8.4	Moderately Alkaline	1.9	Non sodic
0.65 – 0.75	1.2	Non-saline	8.7	Strongly Alkaline	3.4	Non sodic

Site Description – Site B166				
Site Reference	B166	**ASC Name**	Haplic Eutrophic Red Chromosol (BHMOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778448
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414869



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Very dark brown (Munsell 7.5YR 2.5/2) Silty Clay Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. 20% coarse fragments 10 – 50mm. Many fine roots and moderately well drained. Clear boundary.
B21	0.12 – 0.30	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with strong pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. Common roots and moderately well drained. Gradual boundary.
B22	0.30+	Yellowish-brown (Munsell 10YR 5/8) Heavy Clay with strong pedality. Mildly to moderately alkaline, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. No roots and moderately well drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	6.2	Slightly Acidic	0.4	Non sodic
0.20 – 0.30	0.2	Non-saline	7.0	Neutral	1.4	Non sodic
0.40 – 0.50	0.4	Non-saline	7.7	Mildly Alkaline	1.7	Non sodic
0.65 – 0.75	1.0	Non-saline	8.4	Moderately Alkaline	4.3	Non sodic

Site Description – Site B167				
Site Reference	B167	**ASC Name**	Haplic Eutrophic Red Dermosol (BEMOV)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778397
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415231



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown Munsell 7.5YR 3/4) Clay Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
A2	0.10 – 0.20	Strong brown (Munsell 7.5YR 4/6) Clay Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Gradual boundary.
B2	0.20 – 0.60	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with strong pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Very few roots and moderately well drained. Gradual boundary.
BC	0.60+	Yellowish-brown (Munsell 10YR 5/6) Silty Clay with moderate pedality. Moderately alkaline, non-sodic and non-saline. 30% coarse fragments 10 – 30mm. No roots and moderately well drained.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.2	Non-saline	6.3	Slightly Acidic	< 0.1	Non sodic
0.10 – 0.20	0.6	Non-saline	6.4	Slightly Acidic	< 0.1	Non sodic
0.30 – 0.40	0.2	Non-saline	7.3	Neutral	0.4	Non sodic
0.60 – 0.70	0.6	Non-saline	8.0	Moderately Alkaline	0.7	Non sodic

Site Description – Site B168				
Site Reference	B168	**ASC Name**	Mottled Eutrophic Red Dermosol (BELOW)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778619
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415298



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/3) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.20 – 0.40	Strong brown (Munsell 7.5YR 5/6) Loam with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Clear boundary.
B2	0.40+	Red (Munsell 2.5YR 4/8) Heavy Clay to Light Medium Clay with strong pedality. Moderately alkaline, non-sodic and non-saline. Nil coarse fragments. Very few roots and moderately well drained. 30% distinct grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.2	Slightly Acidic	0.1	Non sodic
0.20 – 0.30	0.1	Non-saline	6.7	Neutral	< 0.1	Non sodic
0.40 – 0.50	0.2	Non-saline	7.9	Moderately Alkaline	0.7	Non sodic
0.65 – 0.75	0.5	Non-saline	8.4	Moderately Alkaline	1.2	Non sodic

Site Description – Site B169				
Site Reference	B169	**ASC Name**	Sodic Eutrophic Red Chromosol (BHMOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778782
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415521



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Strong brown (Munsell 7.5YR 4/6) Clay Loam with strong pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 10 – 50mm. Many fine roots and moderately well drained. Clear boundary.
B21	0.12 – 0.40	Reddish-brown (Munsell 2.5YR 4/4) Heavy Clay with strong pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. Common roots and moderately well drained. Gradual boundary.
B22	0.40 – 0.60	Yellowish-brown (Munsell 10YR 5/6) Heavy Clay with moderate pedality. Strongly acidic, sodic and slightly saline. 30% coarse fragments 10 – 50mm. No roots and moderately well drained. Gradual boundary.
C	0.60+	Decomposing parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.2	Non-saline	6.0	Moderately Acidic	1.5	Non sodic
0.20 – 0.30	0.5	Non-saline	7.1	Neutral	6.0	Non sodic
0.40 – 0.50	2.4	Slightly saline	7.7	Mildly Alkaline	14.0	Sodic

Site Description – Site B170				
Site Reference	B170	**ASC Name**	Haplic Eutrophic Red Chromosol (BEKOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778900
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415247



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/3) Loamy Sand with moderate pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.35	Yellowish-red (Munsell 5YR 4/6) Loamy Sand with weak pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Common roots and moderately well drained. Clear boundary.
B21	0.35 – 0.60	Red (Munsell 2.5YR 4/8) Heavy Clay with moderate pedality. Neutral, non-sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. 10% faint grey mottling. Gradual boundary.
B22	0.60+	Red (Munsell 2.5YR 4/6) Heavy Clay with strong pedality. Slightly acidic, non-sodic and non-saline. 30% coarse fragments 10 – 30mm. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.3	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.2	Non-saline	6.9	Neutral	0.2	Non sodic
0.40 – 0.50	0.3	Non-saline	7.2	Neutral	0.8	Non sodic
0.60 – 0.70	0.3	Non-saline	6.3	Slightly Acidic	1.0	Non sodic

Site Description – Site B171				
Site Reference	B171	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 779570
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415445



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 20 – 50mm. Many fine roots and moderately well drained. Gradual boundary.
A2	0.20 – 0.40	Strong brown (Munsell 7.5YR 5/6) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. 30% coarse fragments 20 – 50mm. Few roots and moderately well drained. Clear boundary.
B2	0.40 – 0.70	Red to Yellowish-brown (Munsell 2.5YR 4/6 to 10YR 5/8) Light-medium Clay to Clay Loam with moderate pedality. Moderate to slightly acidic, non-sodic and non-saline. 10% coarse fragments 20 – 50mm. No roots and imperfectly drained. 20% distinct orange mottling. 10% distinct pale grey mottling. Clear boundary.
C	0.70 – 0.80	Decomposing parent material

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.1	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.2	Non-saline	6.5	Slightly Acidic	0.1	Non sodic
0.40 – 0.50	0.2	Non-saline	5.9	Moderately Acidic	1.3	Non sodic
0.60 – 0.70	0.2	Non-saline	6.1	Slightly Acidic	2.0	Non sodic

Site Description – Site B172				
Site Reference	B172	**ASC Name**	Eutrophic Subnatric Red Sodosol (BELOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778779
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415019



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Dark Yellowish-brown (Munsell 10YR 3/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.12 – 0.20	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with weak pedality. Neutral, non-sodic and non-saline. 40% coarse fragments 10 – 20mm. Common roots and moderately well drained. Clear boundary.
B2	0.20 – 0.45	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with moderate pedality. Neutral, sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. Gradual boundary.
BC	0.45 – 0.60	Brownish-yellow (Munsell 10YR 6/6) Silty Clay with weak pedality. Mildly alkaline, sodic and slightly saline. 30% coarse fragments 10 – 30mm. No roots and imperfectly drained. Gradual boundary.
C/R	0.60	Partially decomposing parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.8	Moderately Acidic	0.8	Non sodic
0.10 – 0.20	0.2	Non-saline	6.6	Neutral	3.2	Non sodic
0.30 – 0.40	0.7	Non-saline	6.7	Neutral	9.5	Marginally Sodic
0.50 – 0.60	2.4	Slightly saline	7.7	Mildly Alkaline	15.0	Strongly Sodic

Site Description – Site B173				
Site Reference	B173	**ASC Name**	Mottled Eutrophic Red Dermosol (BENMW)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778895
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414868



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 10YR 3/3) Silty Loam with weak pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
A2	0.15 – 0.35	Brown (Munsell 7.5YR 5/4) Silty Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 40% coarse fragments 10 – 20mm. Common roots and moderately well drained. Gradual boundary.
B2	0.35+	Yellowish-red to Strong brown (Munsell 5YR 5/8 to 7.5YR 5/8) Clay Loam to Sandy Clay Loam with moderate pedality. Strongly acidic, non-sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. 30% distinct grey mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	6.4	Slightly Acidic	0.2	Non sodic
0.20 – 0.30	0.2	Non-saline	6.4	Slightly Acidic	0.4	Non sodic
0.40 – 0.50	0.2	Non-saline	5.7	Moderately Acidic	0.9	Non sodic
0.65 – 0.75	0.2	Non-saline	5.9	Moderately Acidic	1.1	Non sodic

Site Description – Site B174				
Site Reference	B174	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778612
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414756



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 10 – 50mm. Many fine roots and moderately well drained. Clear boundary.
B21	0.20 – 0.55	Red (Munsell 2.5YR 4/6) Heavy Clay with strong pedality. Moderately acidic, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. Few roots and moderately well drained. Gradual boundary.
B22	0.55+	Brownish-yellow to yellowish-brown (Munsell 10YR 6/8 to 10YR 5/8) Medium Clay to Light Medium Clay with strong pedality. Moderately acidic to neutral, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. No roots and moderately well drained. 10% faint red mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.7	Moderately Acidic	0.1	Non sodic
0.20 – 0.30	0.3	Non-saline	5.5	Moderately Acidic	0.6	Non sodic
0.40 – 0.50	0.2	Non-saline	5.6	Moderately Acidic	1.4	Non sodic
0.65 – 0.75	0.4	Non-saline	7.1	Neutral	3.3	Non sodic

Site Description – Site B175				
Site Reference	B175	**ASC Name**	Mottled Eutrophic Brown Chromosol (BELOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified Non-BSAL	X: 778430
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414439



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark brown (Munsell 10YR 3/3) Loam with weak pedality. Moderately acidic, non-sodic and non-saline. Nil coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
A2	0.20 – 0.50	Bleached very pale brown (Munsell 10YR 7/3) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. Nil coarse fragments. Very few roots and imperfectly drained. Clear boundary.
B2	0.50+	Yellowish-brown (Munsell 10YR 5/4) Light Clay with moderate pedality. Neutral to mildly alkaline, non-sodic and non-saline. Nil coarse fragments. No roots and poorly drained. 30% distinct grey mottling. 30% distinct red mottling.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.8	Moderately Acidic	0.3	Non sodic
0.25 – 0.35	0.2	Non-saline	6.2	Slightly Acidic	0.4	Non sodic
0.50 – 0.60	0.3	Non-saline	7.2	Neutral	0.5	Non sodic
0.65 – 0.75	0.3	Non-saline	7.7	Mildly Alkaline	0.9	Non sodic

Site Description – Site B176				
Site Reference	B176	**ASC Name**	Haplic Eutrophic Red Chromosol (BHLOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope Crest	**BSAL Site Status**	Potential BSAL	X: 778496
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413565



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Dark brown (Munsell 7.5YR 3/2) Sandy Loam with strong pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 10 – 50mm. Many fine roots and moderately well drained. Clear boundary.
B21	0.12 – 0.35	Red (Munsell 2.5YR 5/8) Heavy Clay with strong pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. Very few roots and moderately well drained. Gradual boundary.
B22	0.35+	Yellowish-brown (Munsell 10YR 5/4) Light Medium Clay with moderate pedality. Moderately to strongly alkaline, non-sodic and non-saline. 10% coarse fragments 10 – 50mm. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.6	Moderately Acidic	0.2	Non sodic
0.20 – 0.30	0.3	Non-saline	6.6	Neutral	0.6	Non sodic
0.40 – 0.50	0.7	Non-saline	8.2	Moderately Alkaline	2.1	Non sodic
0.65 – 0.75	1.2	Non-saline	8.7	Strongly Alkaline	4.1	Non sodic

Site Description – Site B177				
Site Reference	B177	**ASC Name**	Haplic Eutrophic Brown Kandosol (BHLLVNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderate	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Potential BSAL	X: 778646
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413532



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very dark brown (Munsell 10YR 2/2) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Gradual boundary.
A2	0.10 – 0.40	Very dark brown (Munsell 10YR 2/2) Loam with weak pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Very few roots and moderately well drained. Gradual boundary.
B2	0.40 – 0.60	Dark brown (Munsell 10YR 3/3) Loam with weak pedality. Neutral, sodic and non-saline. 10% coarse fragments 10 – 30mm. No roots and moderately well drained. Gradual boundary.
BC	0.60+	Dark brown (Munsell 7.5YR 3/3) Loam with weak pedality. Mildly alkaline, sodic and non-saline. 30% coarse fragments 10 – 50mm. No roots and moderately well drained. Gradual boundary.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	5.8	Moderately Acidic	0.2	Non sodic
0.20 – 0.30	0.2	Non-saline	6.6	Neutral	0.3	Non sodic
0.40 – 0.50	0.3	Non-saline	7.1	Neutral	0.2	Non sodic
0.65 – 0.75	0.3	Non-saline	7.6	Mildly Alkaline	0.8	Non sodic

Site Description – Site B178				
Site Reference	B178	**ASC Name**	Haplic Eutrophic Red Chromosol (BGLOVNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 779646
Surface Condition	Firm	**Mapped as BSAL**	Yes	Y: 6415997



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark yellowish-brown (Munsell 10YR 4/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
B2	0.20 – 0.55	Red (Munsell 2.5YR 4/6) Medium Clay with strong pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Gradual boundary.
BC	0.55 – 0.80	Yellowish-red (Munsell 5YR 4/6) Clay Loam to Loam with weak pedality. Neutral to mildly alkaline, non-sodic and non-saline. 20% coarse fragments 10 – 30mm. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.5	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.2	Non-saline	6.2	Slightly Acidic	0.7	Non sodic
0.40 – 0.50	0.2	Non-saline	6.7	Neutral	0.9	Non sodic
0.65 – 0.75	0.3	Non-saline	7.4	Mildly Alkaline	1.4	Non sodic

Site Description – Site B179				
Site Reference	B179	**ASC Name**	Haplic Eutrophic Brown Chromosol (BGKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 779821
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415846



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Dark yellowish-brown (Munsell 10YR 4/4) Loamy Sand with moderate pedality. Strongly acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Clear boundary.
B21	0.20 – 0.40	Yellowish-brown (Munsell 10YR 5/6) Clay Loam with strong pedality. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Gradual boundary.
B22	0.40+	Yellowish-brown (Munsell 10YR 5/8) Light Clay with strong pedality. Mildly to strongly alkaline, non-sodic and non-saline. No coarse fragments. Trace roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.1	Non-saline	5.4	Strongly Acidic	0.5	Non sodic
0.20 – 0.30	0.3	Non-saline	7.1	Neutral	1.0	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	1.4	Non sodic
0.65 – 0.75	0.4	Non-saline	8.4	Strongly Alkaline	2.4	Non sodic

Site Description – Site B180				
Site Reference	B180	**ASC Name**	Bleached Eutrophic Red Chromosol (BEKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 779971
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415714



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Yellowish-brown (Munsell 10YR 5/4) Loamy Sand with moderate pedality. Strongly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.35	Bleached light grey (Munsell 5YR 7/1) Loamy Sand with weak pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Abrupt boundary.
B2	0.35+	Red (Munsell 2.5YR 5/8) Light Clay to Clay Loam with strong pedality. Neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.3	Strongly Acidic	0.6	Non sodic
0.15 – 0.25	0.4	Non-saline	6.4	Slightly Acidic	1.0	Non sodic
0.40 – 0.50	0.4	Non-saline	6.8	Neutral	2.9	Non sodic
0.65 – 0.75	0.6	Non-saline	7.2	Neutral	5.2	Non sodic

Site Description – Site B181				
Site Reference	B181	**ASC Name**	Haplic Eutrophic Brown Dermosol (BELMW)	
Average Slope	0%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 777829
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417288



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 10YR 3/3) Loam with strong pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B21	0.15 – 0.40	Dark brown (Munsell 10YR 3/3) Loam with strong pedality. Neutral, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B22	0.40+	Dark brown (Munsell 10YR 3/3to 7.5YR 3/4) Loam to Clay Loam with moderate pedality. Neutral to mildly alkaline, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.8	Moderately Acidic	0.7	Non sodic
0.20 – 0.30	0.3	Non-saline	6.6	Neutral	0.5	Non sodic
0.40 – 0.50	0.2	Non-saline	6.9	Neutral	1.1	Non sodic
0.65 – 0.75	0.3	Non-saline	7.6	Mildly Alkaline	1.7	Non sodic

Site Description – Site B182				
Site Reference	B182	**ASC Name**	Haplic Eutrophic Brown Dermosol (BEKLW)	
Average Slope	0%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 777945
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6417195



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Very dark gray (Munsell 10YR 3/1) Loamy Sand with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B21	0.10 – 0.40	Brown (Munsell 10YR 4/3) Loamy Sand with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
B22	0.40 – 0.70	Dark brown (Munsell 10YR 3/3) Loamy Sand with weak pedality. Neutral, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. Clear boundary.
B23	0.70+	Dark brown (Munsell 10YR 3/3) Sandy Loam with massive pedality. Moderately alkaline, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	6.5	Slightly Acidic	0.7	Non sodic
0.20 – 0.30	0.6	Non-saline	6.6	Neutral	0.6	Non sodic
0.40 – 0.50	1.3	Non-saline	7.2	Neutral	2.9	Non sodic
0.70 – 0.75	1.3	Non-saline	8.3	Moderately Alkaline	5.9	Non sodic

Site Description – Site B183				
Site Reference	B183	**ASC Name**	Haplic Eutrophic Red Dermosol (BELMW)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Plain	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Flat	**BSAL Site Status**	Verified BSAL	X: 778057
Surface Condition	Firm	**Mapped as BSAL**	Yes	Y: 6416987



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/3) Sandy Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.30	Strong brown (Munsell 7.5YR 4/6) Sandy Loam with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Gradual boundary.
B2	0.30+	Yellowish-red to strong brown (Munsell 5YR 4/6 to 7.5YR 5/6) Loamy Sand to Sandy Clay Loam with strong pedality. Neutral to mildly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.8	Non-saline	5.9	Moderately Acidic	0.7	Non sodic
0.20 – 0.30	0.3	Non-saline	6.7	Neutral	1.0	Non sodic
0.40 – 0.50	0.6	Non-saline	6.7	Neutral	0.9	Non sodic
0.65 – 0.75	0.5	Non-saline	7.8	Mildly Alkaline	3.5	Non sodic

Site Description – Site B184				
Site Reference	B184	**ASC Name**	Bleached Eutrophic Red Dermosol (BEKMW)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 778072
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416822



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Bleached pinkish grey (Munsell 5YR 7/2) Loamy Sand with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B2	0.25+	Yellowish red (Munsell 5YR 4/6) Sandy Loam to Sandy Clay Loam with strong pedality. Slightly acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	6.0	Moderately Acidic	0.9	Non sodic
0.15 – 0.25	0.6	Non-saline	6.2	Slightly Acidic	0.6	Non sodic
0.40 – 0.50	0.2	Non-saline	6.3	Slightly Acidic	0.8	Non sodic
0.65 – 0.75	0.1	Non-saline	6.8	Neutral	0.8	Non sodic

Site Description – Site B185				
Site Reference	B185	**ASC Name**	Bleached Eutrophic Red Chromosol (BGLOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Non-BSAL	X: 778003
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416686



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 5 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Bleached very pale grey (Munsell 7.5YR 7/3) Sandy Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 5 – 20mm. Few roots and moderately well drained. Clear boundary.
B2	0.25 – 0.60	Red (Munsell 2.5YR 4/6) Sandy Clay with strong pedality. Slightly acidic, non-sodic and non-saline. 10% coarse fragments 5 – 20mm. No roots and imperfectly drained.
R	0.60	Hard, weakly weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	6.1	Slightly Acidic	0.3	Non sodic
0.15 – 0.25	0.3	Non-saline	6.1	Slightly Acidic	0.4	Non sodic
0.40 – 0.50	0.6	Non-saline	6.3	Slightly Acidic	0.3	Non sodic

Site Description – Site B186				
Site Reference	B186	**ASC Name**	Bleached Eutrophic Red Chromosol (BEKOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778727
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416272



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark reddish-brown (Munsell 5YR 3/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and slightly saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.30	Bleached pinkish grey (Munsell 5YR 7/1) Loam with weak pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B21	0.30 – 0.60	Yellowish-red (Munsell 5YR 4/6) Light Clay with strong pedality. Neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. Gradual boundary.
B22	0.60+	Reddish-brown (Munsell 5YR 4/4) Light Clay with massive pedality. Mildly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	2.6	Slightly saline	5.8	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.3	Non-saline	5.9	Moderately Acidic	0.7	Non sodic
0.40 – 0.50	0.2	Non-saline	6.7	Neutral	1.7	Non sodic
0.65 – 0.75	0.3	Non-saline	7.4	Mildly Alkaline	2.9	Non sodic

Site Description – Site B187				
Site Reference	B187	**ASC Name**	Haplic Eutrophic Brown Dermosol (BEKMVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Crest	**BSAL Site Status**	Non BSAL	X: 779143
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416245



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.20	Yellowish-brown (Munsell 10YR 5/4) Loamy Sand with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B21	0.20 – 0.40	Strong brown (Munsell 7.5YR 5/6) Sandy Loam with moderate pedality. Slightly acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. Gradual boundary.
B22	0.40 – 0.55	Strong brown (Munsell 7.5YR 5/6) Sandy Clay Loam with weak pedality. Neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained.
C	0.55	Hard, weakly weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.2	Non-saline	5.6	Moderately Acidic	0.5	Non sodic
0.10 – 0.20	0.5	Non-saline	6.5	Neutral	0.4	Non sodic
0.25 – 0.35	0.3	Non-saline	6.3	Slightly Acidic	0.3	Non sodic
0.40 – 0.50	0.2	Non-saline	6.8	Neutral	0.4	Non sodic

Site Description – Site B188				
Site Reference	B188	**ASC Name**	Haplic Eutrophic Brown Chromosol (BFLOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 779059
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6416102



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark reddish-brown (Munsell 5YR 3/3) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 5% coarse fragments 5 – 10mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.3	Yellowish-red (Munsell 5YR 5/6) Sandy Loam with weak pedality. Neutral, non-sodic and non-saline. 5% coarse fragments 5 – 10mm. Few roots and moderately well drained. Clear boundary.
B2	0.30 – 0.80	Strong brown to Dark Yellowish-brown (Munsell 7.5YR 5/8 to 10YR 4/4) Light Clay with strong pedality. Mildly to strongly alkaline, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.7	Non-saline	5.9	Moderately Acidic	0.6	Non sodic
0.20 – 0.30	0.4	Non-saline	6.9	Neutral	1.2	Non sodic
0.40 – 0.50	0.3	Non-saline	7.7	Mildly Alkaline	3.2	Non sodic
0.65 – 0.75	1.0	Non-saline	8.5	Strongly Alkaline	2.6	Non sodic

Site Description – Site B189				
Site Reference	B189	**ASC Name**	Haplic Eutrophic Brown Chromosol (BEKMWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778803
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6416032



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark brown (Munsell 7.5YR 3/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and moderately saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A21	0.10 – 0.35	Strong brown (Munsell 7.5YR 4/6) Loamy Sandwith weak pedality. Strongly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
A22	0.35 – 0.50	Strong brown (Munsell 7.5YR 5/8) Loam with moderate pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. Clear boundary.
B2	0.50+	Red (Munsell 2.5YR 4/6) Sandy Clay Loam with moderate pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. 20% pale mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	4.2	Moderately saline	5.8	Moderately Acidic	0.7	Non sodic
0.20 – 0.30	0.7	Non-saline	5.5	Strongly Acidic	0.4	Non sodic
0.40 – 0.50	0.2	Non-saline	5.9	Moderately Acidic	1.5	Non sodic
0.65 – 0.75	0.4	Non-saline	5.8	Moderately Acidic	3.7	Non sodic

Site Description – Site B190				
Site Reference	B190	**ASC Name**	Bleached Eutrophic Red Chromosol (BGKOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778702
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415929



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. 5% coarse fragments 5 – 10mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.35	Bleached pinkish grey (Munsell 5YR 7/2) Loam with weak pedality. Neutral, non-sodic and non-saline. No coarse fragments. Very few roots and moderately well drained. Clear boundary.
B2	0.35+	Dark red (Munsell 2.5YR 3/6) Light-medium Clay trending to Clay Loam with moderate pedality. Moderately acidic to neutral, non-sodic and non-saline. 10% coarse fragments 5 – 20mm. No roots and imperfectly drained. 10% faint pale mottles.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.1	Non-saline	6.0	Moderately Acidic	1.0	Non sodic
0.20 – 0.30	0.2	Non-saline	6.6	Neutral	0.7	Non sodic
0.40 – 0.50	0.2	Non-saline	6.0	Moderately Acidic	1.2	Non sodic
0.65 – 0.75	0.2	Non-saline	6.8	Neutral	3.4	Non sodic

Site Description – Site B191				
Site Reference	B191	**ASC Name**	Bleached Eutrophic Red Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778426
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415687



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Brown (Munsell 7.5YR 4/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.35	Bleached pinkish grey (Munsell 5YR 7/2) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B2	0.35+	Yellowish red to Red (Munsell 5YR 5/8 to 2.5YR 4/8) Light Clay with strong pedality. Neutral to mildly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.6	Non-saline	5.8	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.1	Non-saline	6.3	Slightly Acidic	0.6	Non sodic
0.40 – 0.50	0.2	Non-saline	6.9	Neutral	0.5	Non sodic
0.65 – 0.75	0.2	Non-saline	7.4	Mildly Alkaline	0.6	Non sodic

Site Description – Site B192				
Site Reference	B192	**ASC Name**	Bleached Eutrophic Red Chromosol (BELOVNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778256
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415615



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 4/4) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.33	Bleached light grey (Munsell 5YR 7/1) Loam with massive pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Very few roots and moderately well drained. Clear boundary.
B2	0.30 – 0.60	Yellowish-red (Munsell 5YR 5/8) Medium Clay with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. Gradual boundary.
BC	0.60 – 0.70	Yellowish-red (Munsell 5YR 5/8) Clay Loam with weak pedality. Mildly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained.
C	0.70	Hard, weakly weathered parent material.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	6.2	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.2	Non-saline	6.5	Slightly Acidic	0.1	Non sodic
0.40 – 0.50	0.2	Non-saline	6.8	Neutral	0.7	Non sodic
0.60 – 0.70	0.2	Non-saline	7.5	Mildly Alkaline	0.5	Non sodic

Site Description – Site B193				
Site Reference	B193	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Non-BSAL	X: 778236
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415270



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
B21	0.10 – 0.20	Yellowish-red (Munsell 5YR 4/6) Heavy Clay with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B22	0.20 – 0.60	Yellowish-red (Munsell 5YR 5/8) Heavy Clay with strong pedality. Neutral to strongly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% grey mottling. 5% red mottling.
C	0.60	Hard, weakly weathered parent material.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.5	Moderately Acidic	0.5	Non sodic
0.20 – 0.30	0.2	Non-saline	6.9	Neutral	0.6	Non sodic
0.40 – 0.50	0.2	Non-saline	7.2	Neutral	1.1	Non sodic
0.65 – 0.75	1.3	Non-saline	8.7	Strongly Alkaline	2.0	Non sodic

Site Description – Site B194				
Site Reference	B194	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOWNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 778549
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415567



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.15	Dark brown (Munsell 7.5YR 3/4) Sandy Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.15 – 0.35	Yellowish-red (Munsell 5YR 5/6) Loam with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B22	0.35 – 0.60	Red (Munsell 2.5YR 4/6) Light-Medium Clay with moderate pedality. Moderately alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. Clear boundary. 10% grey mottling.
B21	0.60+	Yellowish-brown (Munsell 10YR 5/6) Clay Loam with moderate pedality. Strongly alkaline, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 20% grey mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	6.1	Slightly Acidic	0.3	Non sodic
0.20 – 0.30	0.2	Non-saline	7.0	Neutral	0.9	Non sodic
0.40 – 0.50	0.4	Non-saline	8.1	Moderately Alkaline	2.3	Non sodic
0.65 – 0.75	0.6	Non-saline	8.7	Strongly Alkaline	4.1	Non sodic

Site Description – Site B195				
Site Reference	B195	**ASC Name**	Bleached Eutrophic Red Chromosol (BGKOWNR)	
Average Slope	2%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 778504
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415332



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Strong brown (Munsell 7.5YR 4/6) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. 5% coarse fragments 20 – 50mm. fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.40	Bleached pinkish grey (Munsell 5YR 7/2) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 5% coarse fragments 20 – 50mm. Few roots and moderately well drained. Clear boundary.
B2	0.40 – 0.75	Yellowish-red to Brownish-yellow (Munsell 5YR 5/6 to 10YR 6/6) Light-Medium trending to Clay Loam with strong pedality. Mildly alkaline to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% faint grey mottles.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.9	Moderately Acidic	0.6	Non sodic
0.20 – 0.30	0.1	Non-saline	6.2	Slightly Acidic	0.3	Non sodic
0.40 – 0.50	0.2	Non-saline	7.5	Mildly Alkaline	0.4	Non sodic
0.65 – 0.75	0.2	Non-saline	7.1	Neutral	1.1	Non sodic

Site Description – Site B196				
Site Reference	B196	**ASC Name**	Haplic Eutrophic Red Chromosol (BELOVNR)	
Average Slope	1%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778524
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415092



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.20	Very dark brown (Munsell 7.5YR 2.5/2) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
B2	0.20 – 0.55	Yellowish-red to Strong brown (Munsell 5YR 4/6 to 7.5YR 5/6) Heavy Clay with strong pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Gradual boundary.
BC	0.55 – 0.70	Dark Yellowish-brown (Munsell 10YR 4/4) Heavy Clay with moderate pedality. Moderately acidic to neutral, non-sodic trending to sodic at depth and non-saline. No coarse fragments. No roots and moderately well drained. Clear boundary.
C	0.70	Hard, weakly weathered parent material.

Sample Depth	ECe		$pH_{(1\text{-}5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.9	Non-saline	5.6	Moderately Acidic	0.3	Non sodic
0.20 – 0.30	0.4	Non-saline	5.8	Moderately Acidic	2.1	Non sodic
0.40 – 0.50	0.6	Non-saline	5.8	Moderately Acidic	3.5	Non sodic
0.60 – 0.70	1.4	Non-saline	7.0	Neutral	6.3	Sodic

Site Description – Site B197				
Site Reference	B197	**ASC Name**	Bleached Eutrophic Brown Chromosol (BELOVNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778633
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415046



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached very pale brown (Munsell 10YR 7/4) Sandy Loam with weak pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Very few roots and moderately well drained. Clear boundary.
B2	0.35 – 0.60	Yellowish-brown (Munsell 10YR 5/6) Light-medium Clay with strong pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% faint orange mottles. Clear boundary.
C	0.60	Coal.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.6	Moderately Acidic	0.9	Non sodic
0.20 – 0.30	0.3	Non-saline	5.8	Moderately Acidic	1.5	Non sodic
0.40 – 0.50	0.7	Non-saline	5.8	Moderately Acidic	4.7	Non sodic

Site Description – Site B198				
Site Reference	B198	**ASC Name**	Bleached-Sodic Eutrophic Brown Chromosol (BEKOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778537
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414966

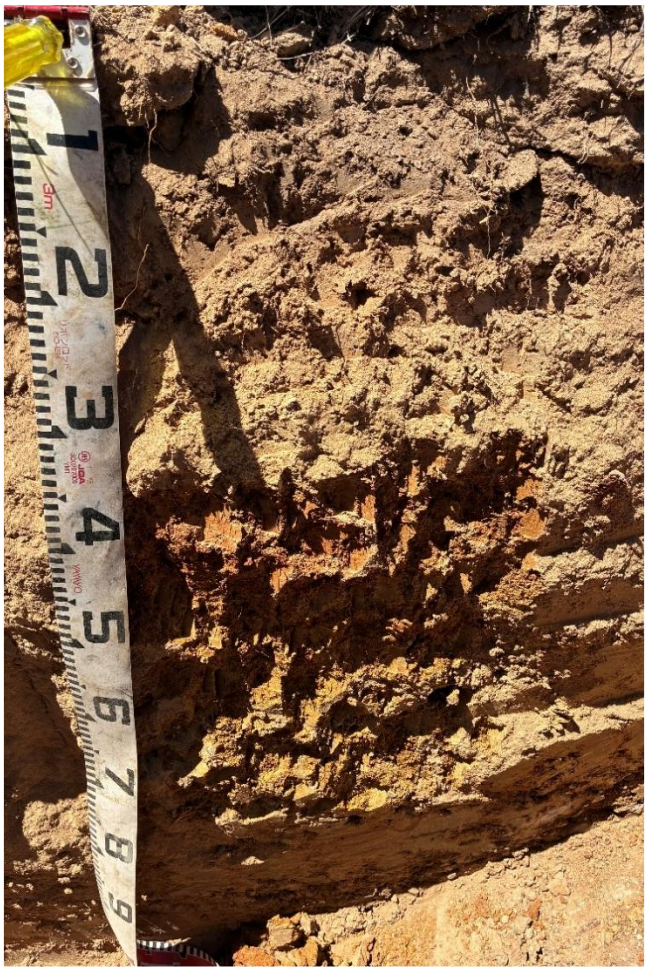


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Yellowish-brown (Munsell 10YR 5/4) Loamy Sand with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.12 – 0.35	Bleached very pale brown (Munsell 10YR 7/4) Loamy Sand with weak pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B21	0.35 – 0.60	Yellowish-brown (Munsell 10YR 5/6) Medium Clay with moderate pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. Clear boundary.
B22	0.60+	Yellowish-brown (Munsell 10YR 5/6) Light Clay with moderate pedality. Slightly acidic to neutral, sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 20% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	6.0	Moderately Acidic	1.1	Non sodic
0.20 – 0.30	0.4	Non-saline	6.2	Slightly Acidic	2.6	Non sodic
0.40 – 0.50	0.2	Non-saline	6.0	Moderately Acidic	4.4	Non sodic
0.65 – 0.75	0.7	Non-saline	6.3	Slightly Acidic	8.8	Sodic

Site Description – Site B199				
Site Reference	B199	**ASC Name**	Haplic Eutrophic Red Chromosol (BFKLOVNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778427
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6415034

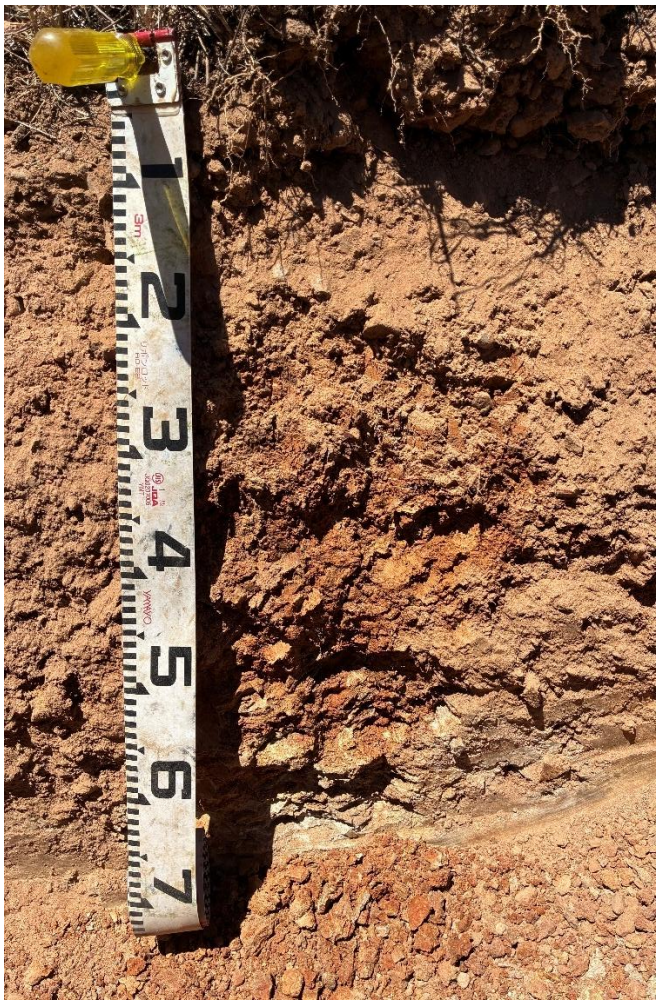


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Strong brown (Munsell 7.5YR 4/6) Sandy Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 5% coarse fragments 5 – 10mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Yellowish-red (Munsell 5YR 5/6) Sandy Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 5% coarse fragments 5 – 10mm. Few roots and moderately well drained. Clear boundary.
B2	0.25 – 0.65	Yellowish-red (Munsell 5YR 5/8) Light-medium Clay with strong pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. Clear boundary. 30% faint orange mottling.
R	0.65	Hard, weakly weathered parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.8	Moderately Acidic	1.1	Non sodic
0.15 – 0.25	0.5	Non-saline	6.1	Slightly Acidic	0.7	Non sodic
0.40 – 0.50	0.2	Non-saline	5.6	Moderately Acidic	1.0	Non sodic

Site Description – Site B200				
Site Reference	B200	**ASC Name**	Bleached-Mottled Eutrophic Red Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 778292
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6414800



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark yellowish-brown (Munsell 10YR 4/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached white (Munsell 10YR 8/1) apedal Loam. Neutral, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B2	0.35 +	Red to Light brownish-gray (Munsell 2.5YR 4/8 to 10YR 6/2) Medium Clay to Silty Clay with weak pedality. Mildly to strongly alkaline, non-sodic and non-saline. No coarse fragments. No roots and poorly drained. 20% distinct grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	5.6	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.2	Non-saline	6.6	Neutral	0.9	Non sodic
0.40 – 0.50	0.2	Non-saline	7.6	Mildly Alkaline	0.6	Non sodic
0.65 – 0.75	1.2	Non-saline	8.4	Strongly Alkaline	1.7	Non sodic

Site Description – Site B201				
Site Reference	B201	**ASC Name**	Mottled Eutrophic Brown Chromosol (BELOWNR)	
Average Slope	5%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 778444
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414685

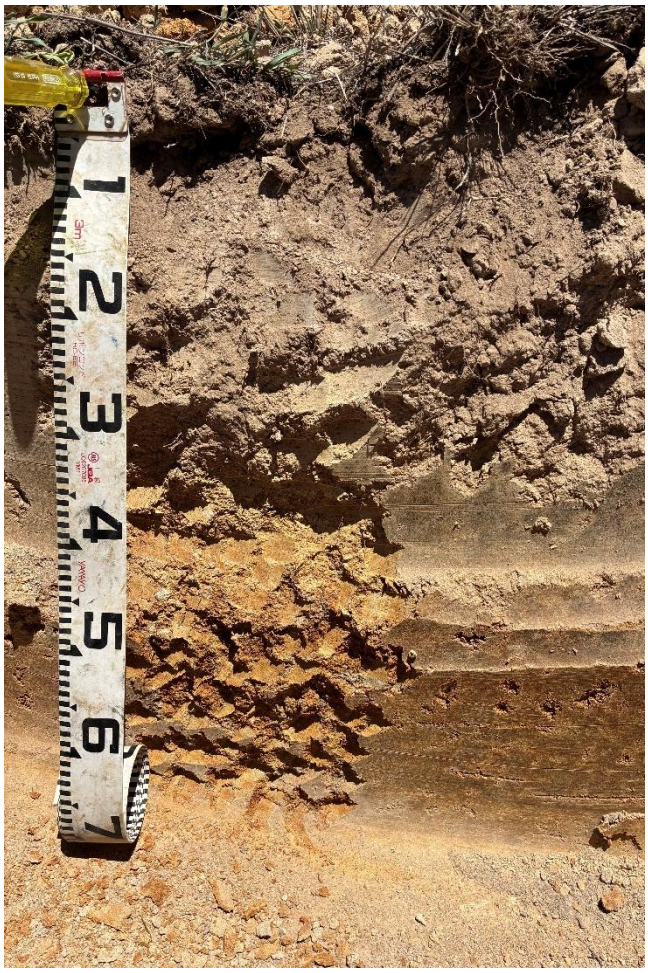


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Silty Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Light yellowish-brown (Munsell 10YR 6/4) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B2	0.35+	Yellowish-brown (Munsell 10YR 5/8) Light Medium Clay to Light Clay with strong pedality. Moderately acidic to slightly acidic, non-sodic and non-saline. No coarse fragments. Trace roots and imperfectly drained. 10% pale mottling, 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.3	Non-saline	5.6	Moderately Acidic	1.1	Non sodic
0.20 – 0.30	0.2	Non-saline	6.3	Slightly Acidic	0.7	Non sodic
0.40 – 0.50	0.3	Non-saline	5.8	Moderately Acidic	1.4	Non sodic
0.65 – 0.75	0.4	Non-saline	6.0	Slightly Acidic	2.5	Non sodic

Site Description – Site B202				
Site Reference	B202	**ASC Name**	Bleached Eutrophic Red Chromosol (BELOWNR)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified BSAL	X: 778676
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414600



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Dark brown (Munsell 7.5YR 3/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Common fine roots and moderately well drained. Gradual boundary.
A2	0.12 – 0.40	Bleached pink (Munsell 5YR 7/3) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. Clear boundary.
B2	0.40+	Yellowish-red (Munsell 5YR 4/6) Light Medium Clay to Light Clay with strong pedality. Neutral to mildly alkaline, non-sodic and non-saline. No coarse fragments. Trace roots and imperfectly drained.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.6	Moderately Acidic	0.4	Non sodic
0.20 – 0.30	0.2	Non-saline	6.5	Slightly Acidic	0.5	Non sodic
0.40 – 0.50	0.2	Non-saline	7.0	Neutral	0.6	Non sodic
0.65 – 0.75	0.2	Non-saline	7.6	Mildly Alkaline	1.0	Non sodic

Site Description – Site B203				
Site Reference	B203	**ASC Name**	Bleached-Sodic Eutrophic Brown Chromosol (BGLOWNR)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified BSAL	X: 778868
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414717

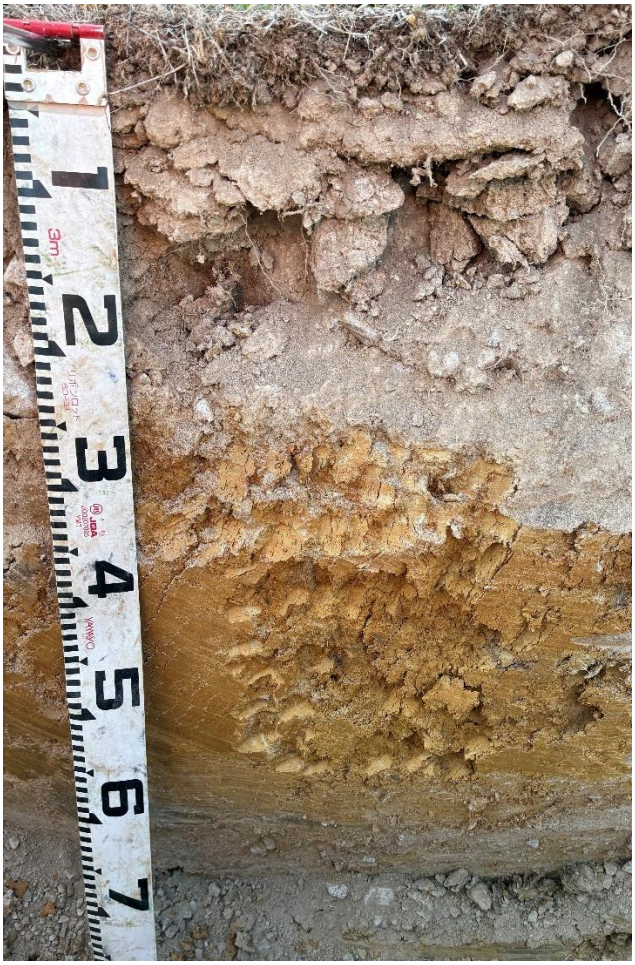


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 5/3) Loam with moderate pedality. Slightly acidic, non-sodic and slightly saline. 10% coarse fragments 5 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Bleached very pale grey (Munsell 10YR 7/3) Loam with weak pedality. Strongly acidic, non-sodic and non-saline. 20% coarse fragments 5 – 20mm. Few roots and moderately well drained. Abrupt boundary.
B2	0.25+	Yellowish-brown (Munsell 10YR 5/4) Heavy Clay to Light Clay with strong pedality. Slightly acidic to moderately alkaline, non-sodic trending to sodic at depth, and non-saline. 10% coarse fragments 5 – 20mm. No roots and imperfectly drained. 10% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	3.4	Slightly saline	6.2	Slightly Acidic	0.7	Non sodic
0.20 – 0.30	0.2	Non-saline	5.4	Strongly Acidic	2.5	Non sodic
0.40 – 0.50	0.5	Non-saline	6.0	Slightly Acidic	1.1	Non sodic
0.65 – 0.75	1.0	Non-saline	7.8	Moderately Alkaline	9.5	Sodic

Site Description – Site B204				
Site Reference	B204	**ASC Name**	Bleached Eutrophic Brown Dermosol (BGLMW)	
Average Slope	8%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified BSAL	X: 779011
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6414804



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.12	Dark Yellowish-brown (Munsell 10YR 4/4) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 5% coarse fragments 5 – 20mm. Many fine roots and moderately well drained. Clear boundary.
A2	0.12 – 0.35	Bleached very pale grey (Munsell 10YR 8/2) Sandy Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 5% coarse fragments 5 – 20mm. Few roots and moderately well drained. Gradual boundary.
B21	0.35 – 0.50	Bleached very pale grey (Munsell 7.5YR 7/3) Clay Loam with weak pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 5 – 20mm. Few roots and moderately well drained. Clear boundary.
B22	0.50+	Yellowish-brown (Munsell 10YR 5/8) Clay Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 10% faint grey mottling, 10% faint orange mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	5.8	Moderately Acidic	1.6	Non sodic
0.20 – 0.30	0.2	Non-saline	6.3	Slightly Acidic	2.1	Non sodic
0.40 – 0.50	0.2	Non-saline	5.8	Moderately Acidic	2.2	Non sodic
0.65 – 0.75	0.2	Non-saline	5.7	Moderately Acidic	4.0	Non sodic

Site Description – Site B205				
Site Reference	B205	**ASC Name**	Bleached Eutrophic Grey Chromosol (BELOWNR)	
Average Slope	4%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Verified BSAL	X: 780533
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6413074



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.30	Bleached very pale grey (Munsell 10YR 8/4) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. 5% coarse fragments 5 – 20mm. Few roots and moderately well drained. Clear boundary.
B21	0.30 – 0.50	Bleached very pale grey (Munsell 7.5YR 7/3) Clay Loam with weak pedality. Moderately acidic, non-sodic and non-saline. 20% coarse fragments 5 – 20mm. No roots and moderately well drained. Clear boundary.
B22	0.50+	Brownish-yellow (Munsell 10YR 6/8) Light Medium Clay with moderate pedality. Moderately acidic to neutral, non-sodic and non-saline. No coarse fragments. No roots and imperfectly drained. 20% faint orange mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.5	Non-saline	6.1	Slightly Acidic	0.5	Non sodic
0.20 – 0.30	0.1	Non-saline	6.1	Slightly Acidic	0.5	Non sodic
0.40 – 0.50	0.1	Non-saline	5.8	Moderately Acidic	1.8	Non sodic
0.65 – 0.75	0.2	Non-saline	5.6	Moderately Acidic	2.1	Non sodic

Site Description – Site B206				
Site Reference	B206	**ASC Name**	Eutrophic Subnatric Yellow Sodosol (BGLOWNR)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately Low	MGA 55
Landform Element	Mid Slope	**BSAL Site Status**	Non-BSAL	X: 780441
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412956



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Brown (Munsell 10YR 4/3) Loam with moderate pedality. Strongly acidic, non-sodic and non-saline. 10% coarse fragments 20 - 50mm. Common roots and moderately well drained. Clear boundary.
A2	0.10 – 0.25	Bleached white (Munsell 10YR 8/1) Sandy Loam with weak pedality. Slightly acidic, sodic and non-saline. 10% coarse fragments 5 – 50mm. Few roots and moderately well drained. Clear boundary.
B2	0.25+	Yellowish-brown (Munsell 10YR 5/4) Heavy Clay to Light Medium Clay with strong pedality. Neutral to moderately alkaline, sodic and slightly saline. No coarse fragments. No roots and imperfectly drained. 20% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	1.0	Non-saline	5.2	Strongly Acidic	3.2	Non sodic
0.15 – 0.25	0.3	Non-saline	6.2	Slightly Acidic	7.3	Sodic
0.40 – 0.50	0.6	Non-saline	7.3	Neutral	9.7	Sodic
0.65 – 0.75	2.5	Slightly saline	8.1	Moderately Alkaline	21.0	Sodic

Site Description – Site B207				
Site Reference	B207	**ASC Name**	Bleached-Sodic Eutrophic Brown Dermosol (BGLMW)	
Average Slope	7%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Verified BSAL	X: 780567
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412845

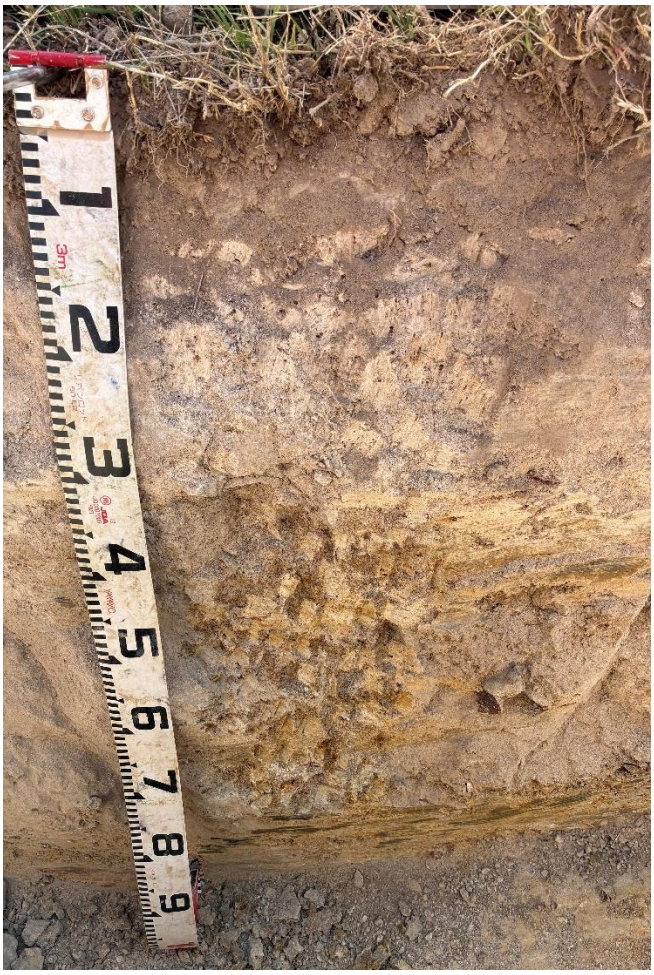


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark grayish-brown (Munsell 10YR 4/2) Loam with weak pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 20 - 50mm. Few roots and moderately well drained. Clear boundary.
A2	0.10 – 0.35	Bleached white (Munsell 10YR 8/1) Loam with weak pedality. Neutral, non-sodic and non-saline. 10% coarse fragments 5 – 50mm. No roots and moderately well drained. Clear boundary.
B2	0.35+	Yellowish-brown (Munsell 10YR 5/4) Clay Loam with strong pedality. Mildly to moderately alkaline, non-sodic trending to sodic at depth and non-saline. No coarse fragments. No roots and imperfectly drained. 20% faint grey mottling.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.6	Neutral	1.6	Non sodic
0.20 – 0.30	0.2	Non-saline	7.1	Neutral	3.7	Non sodic
0.40 – 0.50	0.2	Non-saline	7.7	Mildly Alkaline	4.2	Non sodic
0.65 – 0.75	0.5	Non-saline	8.4	Moderately Alkaline	8.9	Sodic

Site Description – Site B208				
Site Reference	B208	**ASC Name**	Haplic Eutrophic Brown Dermosol (BGLOW)	
Average Slope	6%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Upper Slope	**BSAL Site Status**	Non-BSAL	X: 780662
Surface Condition	Soft	**Mapped as BSAL**	No	Y: 6412984



Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A	0.00 – 0.10	Strong brown (Munsell 7.5YR 4/6) Loam with moderate pedality. Moderately acidic, non-sodic and non-saline. 10% coarse fragments 10 – 20mm. Many fine roots and moderately well drained. Gradual boundary.
B	0.10 – 0.30	Dark reddish-brown (Munsell 2.5YR 2.5/4) Light Clay with strong pedality. Moderately acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
BC	0.30 – 0.50	Yellowish-red (Munsell 5YR 5/6) Light Medium Clay with weak pedality. Moderately acidic to neutral, non-sodic and non-saline. 30% coarse fragments 10 – 30mm. No roots and moderately well drained.
C	0.50	Decomposing, weakly weathered parent material.

Sample Depth	ECe		pH(1-5water)		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.6	Non-saline	6.6	Neutral	0.3	Non sodic
0.20 – 0.30	0.8	Non-saline	8.5	Strongly Alkaline	0.2	Non sodic
0.40 – 0.50	0.7	Non-saline	8.5	Strongly Alkaline	0.2	Non sodic

Site Description – Site B209				
Site Reference	B209	**ASC Name**	Mottled Eutrophic Red Chromosol (BELOWNR)	
Average Slope	3%	**Land Use**	Grazing	**Coordinates**
Landform Pattern	Hillslope	**Soil Fertility**	Moderately High	MGA 55
Landform Element	Lower Slope	**BSAL Site Status**	Verified BSAL	X: 779865
Surface Condition	Soft	**Mapped as BSAL**	Yes	Y: 6415667

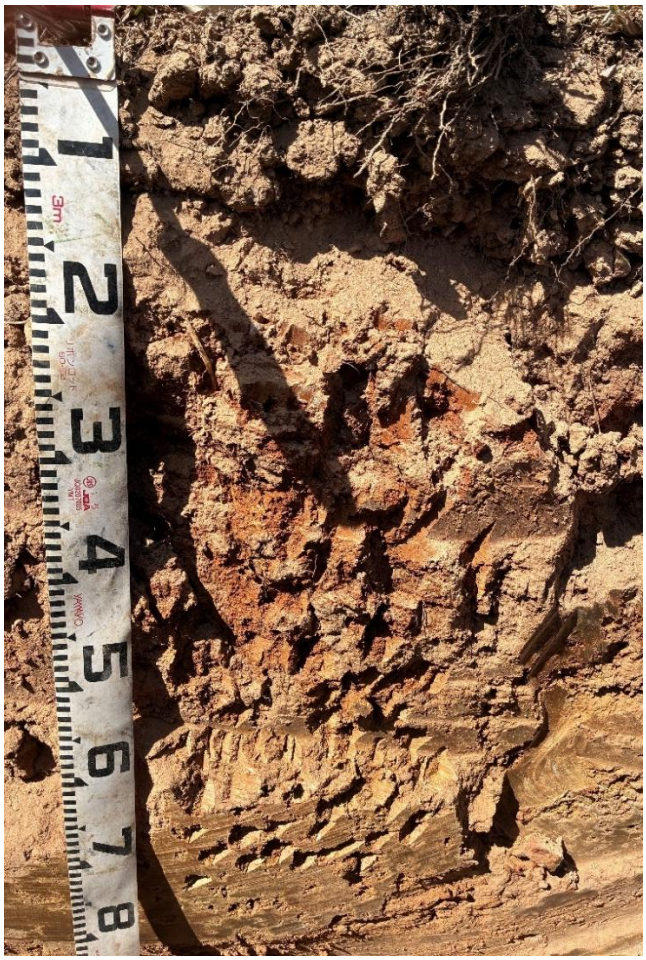


Plate 1 – Soil Profile



Plate 2 – Surface



Plate 3 – Landscape

Horizon	Depth (m)	Description
A1	0.00 – 0.10	Dark Yellowish-brown (Munsell 10YR 4/4) Silty Loam with moderate pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Many fine roots and moderately well drained. Clear boundary.
A2	0.10 – 0.20	Strong brown (Munsell 7.5YR 5/6) Loam with weak pedality. Slightly acidic, non-sodic and non-saline. No coarse fragments. Few roots and moderately well drained. Clear boundary.
B21	0.20 – 0.60	Red (Munsell 2.5YR 4/6) Light Clay with moderate pedality. Neutral, non-sodic and non-saline. No coarse fragments. Trace roots and moderately well drained. Clear boundary.
B22	0.60+	Yellowish-brown (Munsell 10YR 5/6) Light-medium Clay with massive pedality. Moderately alkaline, non-sodic and non-saline. No coarse fragments. No roots and moderately well drained. 20% distinct pale mottling.

Sample Depth	ECe		$pH_{(1-5water)}$		ESP	
	dS/m	Rating	Value	Rating	Value	Rating
0.00 – 0.10	0.4	Non-saline	6.1	Slightly Acidic	0.4	Non sodic
0.10 – 0.20	0.7	Non-saline	6.3	Slightly Acidic	1.2	Non sodic
0.40 – 0.50	0.2	Non-saline	7.0	Neutral	2.7	Non sodic
0.65 – 0.75	0.4	Non-saline	8.3	Moderately Alkaline	4.3	Non sodic

Appendix 2
Laboratory Certificates

Soil - Certificate of Analysis - E26-00-1204

Client:	Minesoils Pty. Ltd.	Laboratory:	Environmental Analysis Laboratory
Contact:	Matt Hemingway	Contact:	EAL Customer Service Team
Address:	PO Box 11034, TAMWORTH, NSW 2340, Australia	Address:	Military Road, East Lismore NSW 2480, Australia
Telephone:	0408 474 248	Telephone:	(02) 6620 3678
Email:	matt@minesoils.com.au	Email:	eal@scu.edu.au

Customer reference:	MS-079 Wilpinjong	Request ID:	EAL /E26-00-1204
Number of samples:	124	Report ID:	E26-00-1204_EALT1_1
Date samples received:	10 February 2026	Issue date:	27 February 2026

Authorised by:	Nick Ward
Position:	Technical Team Leader

Accreditation No. 14960

Comments: EAL is a NATA accredited laboratory (14960), accredited for compliance with ISO/IEC 17025 - Testing.

Samples arrived 4/2/26

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	178	178	178	178	179
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0001	E26-00-1204-0002	E26-00-1204-0003	E26-00-1204-0004	E26-00-1204-0005
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.51	6.19	6.71	7.36	5.44
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.049	0.021	0.021	0.030	0.047
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.72	9.20	9.69	9.41	2.48
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2120	4130	4350	4220	1110
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	946	1840	1940	1880	496
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.74	4.19	4.77	4.65	0.95
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	472	1140	1300	1270	259
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	211	509	579	566	115
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.04	0.56	0.48	0.51	0.72
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	913	487	421	444	634
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	408	218	188	198	283
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.10	0.14	0.21	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	49.9	71.8	107	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	22.3	32.1	47.7	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.16	0.04	< 0.01	< 0.01	0.15
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	32	7.2	1.6	< 1	31
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	14	3.2	< 1	< 1	14
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.19	0.052	< 0.01	< 0.01	0.15
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	4.3	1.2	< 1	< 1	3.3
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.9	< 1	< 1	< 1	1.5
Calcium - Base Saturation	%	** Calculation	<0.1	60	65	64	64	55
Magnesium - Base Saturation	%	** Calculation	<0.1	22	30	32	31	21
Potassium - Base Saturation	%	** Calculation	<0.1	13	3.9	3.2	3.4	16
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.5	0.7	0.9	1.4	0.5
Aluminium - Base Saturation	%	** Calculation	<0.1	2.0	0.3	< 0.1	< 0.1	3.4
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.7	2.2	2.0	2.0	2.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	7.9	14.1	15.1	14.8	4.5
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.7	3.2	< 0.1	1.4	6.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.0	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.7	3.2	< 0.1	1.4	6.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.1	3.7	1.2	1.2	30.5
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	38.0	27.2	36.9	49.3	42.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.5	18.4	23.9	24.4	12.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.7	47.5	38.0	23.8	8.3
Colour Code	---	** Inhouse S84	---	10YR 4/4	2.5YR 4/6	5YR 4/6	7.5YR 5/6	10YR 4/4
Colour Description	---	** Inhouse S84	---	Dark Yellowish Brown	Red	Yellowish Red	Strong Brown	Dark Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	---	---

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	178	178	178	178	179
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0001	E26-00-1204-0002	E26-00-1204-0003	E26-00-1204-0004	E26-00-1204-0005
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	---	---

			Client Sample ID:	179	179	179	180	180
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0006	E26-00-1204-0007	E26-00-1204-0008	E26-00-1204-0009	E26-00-1204-0010
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.08	7.67	8.43	5.30	6.38
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.031	0.033	0.046	0.039	0.017
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.87	4.94	4.18	1.57	1.48
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2640	2220	1880	704	666
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1180	989	838	314	297
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	5.92	6.31	7.54	0.92	1.14
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1610	1720	2050	252	310
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	719	767	916	112	138
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.95	0.77	0.82	0.66	0.51
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	834	676	716	574	451
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	372	302	319	256	201
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.13	0.17	0.30	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	65.7	88.6	157	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	29.3	39.6	70.1	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	0.40	0.04
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.8	1.5	1.7	81	7.5
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	36	3.4
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	0.26	0.025
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	5.7	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	2.6	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	46	40	33	41	46
Magnesium - Base Saturation	%	** Calculation	<0.1	46	52	59	24	35
Potassium - Base Saturation	%	** Calculation	<0.1	7.4	6.3	6.4	17	16
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.0	1.4	2.4	0.6	1.0
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	11	1.2
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.0	0.8	0.6	1.7	1.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	12.9	12.2	12.8	3.8	3.2
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	16.7	10.0	4.8	3.3	7.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.7	6.4	1.9	0.4	5.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.0	3.6	2.9	2.9	2.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.1	20.7	14.8	31.9	31.9

Certificate of Analysis

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			Client Sample ID:	179	179	179	180	180
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0006	E26-00-1204-0007	E26-00-1204-0008	E26-00-1204-0009	E26-00-1204-0010
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	28.1	28.2	37.2	43.2	40.3
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.3	8.5	10.6	12.0	12.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.9	32.7	32.6	9.6	7.9
Colour Code	---	** Inhouse S84	---	10YR 5/6	10YR 5/8	10YR 5/6	10YR 5/4	5YR 5/6
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Yellowish Brown	Yellowish Brown	Yellowish Brown	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 5/8	---	5YR 5/8, 10YR 2/2	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Strong Brown	---	Yellowish Red, Very Dark Brown	---	---
Degree of Mottling	%	** Inhouse S84	---	10	---	30,1	---	---

			Client Sample ID:	180	180	181	181	181
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0011	E26-00-1204-0012	E26-00-1204-0013	E26-00-1204-0014	E26-00-1204-0015
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.83	7.23	5.84	6.55	6.86
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.041	0.064	0.093	0.029	0.024
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.70	1.75	7.56	6.24	5.63
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1210	785	3390	2800	2530
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	540	350	1520	1250	1130
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	7.08	7.34	3.28	1.69	1.62
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1930	2000	894	460	442
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	861	892	399	205	197
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.63	0.51	1.78	1.16	0.51
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	554	447	1560	1010	445
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	247	199	696	452	199
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.32	0.53	0.09	< 0.065	0.09
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	163	273	44.5	< 33	44.3
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	72.7	122	19.9	< 15	19.8
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.01	0.02	0.02	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.9	2.1	4.9	3.0	2.7
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	2.2	1.3	1.2
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.075	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.7	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	25	17	59	68	72
Magnesium - Base Saturation	%	** Calculation	<0.1	66	72	26	18	21
Potassium - Base Saturation	%	** Calculation	<0.1	5.9	5.0	14	13	6.5
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	2.9	5.2	0.7	0.5	1.1
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	0.1	0.2	0.2	0.2

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			Client Sample ID:	180	180	181	181	181
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0011	E26-00-1204-0012	E26-00-1204-0013	E26-00-1204-0014	E26-00-1204-0015
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.4	0.2	2.3	3.7	3.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	10.7	10.1	12.8	9.1	7.9
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.6	1.3	0.3	< 0.1	< 0.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.7	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.0	1.3	0.3	< 0.1	< 0.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.1	23.5	5.1	6.7	11.5
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.9	34.2	54.8	67.6	57.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.3	13.2	17.4	13.9	15.3
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	33.0	27.7	22.4	11.8	15.6
Colour Code	---	** Inhouse S84	---	10YR 5/4	2.5YR 5/8	10YR 3/3	10YR 3/3	10YR 3/3
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Red	Dark Brown	Dark Brown	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	2.5YR 3/6	10YR 6/4, 10YR 6/5	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Dark Red	Light Yellowish Brown, Brownish Yellow	---	---	---
Degree of Mottling	%	** Inhouse S84	---	50	30,30	---	---	---

			Client Sample ID:	181	182	182	182	182
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	70 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0016	E26-00-1204-0017	E26-00-1204-0018	E26-00-1204-0019	E26-00-1204-0020
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.59	6.49	6.57	7.23	8.31
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.039	0.033	0.028	0.055	0.090
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.52	3.07	2.88	3.69	3.88
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2030	1380	1290	1650	1740
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	905	614	576	739	778
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	2.80	1.26	1.09	1.68	2.41
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	761	343	297	457	655
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	340	153	132	204	292
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.48	0.59	0.38	0.49	0.42
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	417	519	335	426	366
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	186	232	150	190	164
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.13	< 0.065	< 0.065	0.17	0.42
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	67.5	< 33	< 33	89.9	219
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	30.1	< 15	< 15	40.1	97.6

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			Client Sample ID:	181	182	182	182	182
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	70 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0016	E26-00-1204-0017	E26-00-1204-0018	E26-00-1204-0019	E26-00-1204-0020
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.01	0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.8	2.7	2.2	1.9	1.7
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.3	1.2	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.011	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	57	62	66	61	54
Magnesium - Base Saturation	%	** Calculation	<0.1	35	25	25	28	34
Potassium - Base Saturation	%	** Calculation	<0.1	6.0	12	8.7	8.1	5.9
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.7	0.7	0.6	2.9	5.9
Aluminium - Base Saturation	%	** Calculation	<0.1	0.2	0.3	0.3	0.2	0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.6	2.4	2.6	2.2	1.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	7.9	5.0	4.4	6.0	7.1
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.9	0.1	< 0.1	0.4	3.8
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.9	0.1	< 0.1	0.4	2.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.7	53.8	48.9	45.2	53.0
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	43.9	27.7	37.3	37.2	29.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.1	10.5	5.8	8.1	3.3
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.5	7.9	8.0	9.1	10.5
Colour Code	---	** Inhouse S84	---	7.5YR 3/4	10YR 3/1	10YR 4/3	10YR 3/3	10YR 3/3
Colour Description	---	** Inhouse S84	---	Dark Brown	Very Dark Grey	Brown	Dark Brown	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	---	---

			Client Sample ID:	183	183	183	183	184
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0021	E26-00-1204-0022	E26-00-1204-0023	E26-00-1204-0024	E26-00-1204-0025
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.88	6.67	6.66	7.76	6.00
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.056	0.024	0.025	0.056	0.028

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			Client Sample ID:	183	183	183	183	184
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0021	E26-00-1204-0022	E26-00-1204-0023	E26-00-1204-0024	E26-00-1204-0025
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.59	1.91	1.85	3.94	2.58
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1160	856	829	1770	1160
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	519	382	370	789	517
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.23	1.69	1.65	3.80	0.94
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	334	459	449	1030	255
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	149	205	200	461	114
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.18	0.68	0.63	0.79	0.92
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	1030	595	555	695	808
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	460	266	248	310	361
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	0.31	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	161	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	71.9	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.01	< 0.01	< 0.01	0.03
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	4.8	2.2	1.6	1.9	5.6
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.2	< 1	< 1	< 1	2.5
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.054	< 0.01	< 0.01	< 0.01	0.067
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.2	< 1	< 1	< 1	1.5
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	51	44	44	44	56
Magnesium - Base Saturation	%	** Calculation	<0.1	24	39	39	43	20
Potassium - Base Saturation	%	** Calculation	<0.1	23	16	15	9.0	20
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.7	1.0	0.9	3.5	0.9
Aluminium - Base Saturation	%	** Calculation	<0.1	0.5	0.2	0.2	0.1	0.6
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.1	1.1	1.1	1.0	2.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.1	4.3	4.2	8.9	4.6
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.0	4.7	5.6	8.0	3.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	< 0.1	1.0	1.5	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.4	4.7	4.6	6.6	3.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.5	29.2	28.6	24.0	29.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	49.8	49.8	51.0	39.4	51.0
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.6	6.2	7.5	6.5	10.0
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.2	10.0	7.4	22.2	6.8
Colour Code	---	** Inhouse S84	---	7.5YR 3/3	7.5YR 4/6	5YR 4/6	7.5YR 5/6	7.5YR 3/4
Colour Description	---	** Inhouse S84	---	Dark Brown	Strong Brown	Yellowish Brown	Strong Brown	Dark Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	10YR 5/4, 2.5YR 4/6	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	Yellowish Brown, Red	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	25, 5	---

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			Client Sample ID:	184	184	184	185	185
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0026	E26-00-1204-0027	E26-00-1204-0028	E26-00-1204-0029	E26-00-1204-0030
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.18	6.30	6.83	6.08	6.13
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.025	0.011	0.015	0.050	0.024
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.70	2.35	3.16	3.46	1.96
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1210	1050	1420	1550	882
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	542	470	634	693	394
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.91	2.07	4.10	0.99	0.75
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	249	564	1120	269	205
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	111	252	498	120	91.4
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.71	0.45	0.55	0.59	0.46
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	625	395	481	517	399
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	279	176	215	231	178
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.02	< 0.01	0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.4	3.4	1.7	2.8	1.7
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.1	1.5	< 1	1.3	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.023	< 0.01	0.070	0.034
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	1.6	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	62	47	40	67	61
Magnesium - Base Saturation	%	** Calculation	<0.1	21	42	52	19	23
Potassium - Base Saturation	%	** Calculation	<0.1	16	9.1	7.0	11	14
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.6	0.8	0.8	0.3	0.4
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.3	0.1	0.3	0.3
Calcium/Magnesium Ratio	---	** Calculation	<0.1	3.0	1.1	0.8	3.5	2.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.4	4.9	7.9	5.1	3.2
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.6	0.5	0.2	27.2	14.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	1.6	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.6	0.5	0.2	25.6	14.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.7	21.9	21.0	33.5	36.8
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	51.4	55.6	52.4	22.4	34.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.1	4.4	1.9	9.5	4.4
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	8.2	17.7	24.6	7.5	10.1
Colour Code	---	** Inhouse S84	---	7.5YR 3/4	5YR 4/6	5YR 4/6	10YR 4/3	10YR 4/4
Colour Description	---	** Inhouse S84	---	Dark Yellowish Brown	Yellowish Red	Yellowish Red	Brown	Dark Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	---	---

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	184	184	184	185	185
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0026	E26-00-1204-0027	E26-00-1204-0028	E26-00-1204-0029	E26-00-1204-0030
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	---	---

			Client Sample ID:	185	186	186	186	186
			Sample Depth:	40 - 50	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0031	E26-00-1204-0032	E26-00-1204-0033	E26-00-1204-0034	E26-00-1204-0035
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.26	5.82	5.87	6.73	7.41
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.027	0.112	0.036	0.021	0.034
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.55	4.64	2.56	5.11	6.01
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2040	2080	1150	2290	2700
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	911	930	513	1020	1200
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	4.82	1.91	1.14	5.20	6.86
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1310	520	309	1420	1870
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	586	232	138	632	834
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.70	1.62	0.72	0.35	0.46
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	610	1420	632	309	401
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	272	633	282	138	179
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	0.19	0.41
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	96.6	209
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	43.1	93.1
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	0.01	0.07	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	6.5	2.8	13	1.1	< 1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.9	1.3	6.0	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.050	0.090	0.074	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.1	2.0	1.6	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	45	56	56	47	44
Magnesium - Base Saturation	%	** Calculation	<0.1	47	23	25	48	50
Potassium - Base Saturation	%	** Calculation	<0.1	6.8	20	16	3.3	3.3
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.3	0.4	0.7	1.7	2.9
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.2	1.5	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.9	2.4	2.2	1.0	0.9
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	10.2	8.3	4.6	10.9	13.7
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.4	0.9	1.0	0.1	< 0.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.2	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.2	0.9	1.0	0.1	< 0.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	35.0	26.3	20.8	15.2	2.0

Certificate of Analysis

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			Client Sample ID:	185	186	186	186	186
			Sample Depth:	40 - 50	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0031	E26-00-1204-0032	E26-00-1204-0033	E26-00-1204-0034	E26-00-1204-0035
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.7	46.3	45.4	38.0	51.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.4	16.3	18.4	11.1	8.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	30.5	10.3	14.5	35.5	37.7
Colour Code	---	** Inhouse S84	---	2.5YR 4/6	5YR 3/4	5YR 3/4	5YR 4/6	5YR 4/4
Colour Description	---	** Inhouse S84	---	Red	Dark Reddish Brown	Dark Reddish Brown	Yellowish Red	Reddish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 5/4	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Brown	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	30	---	---	---	---

			Client Sample ID:	187	187	187	187	188
			Sample Depth:	0 - 10	10--20	25 - 35	40 - 50	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0036	E26-00-1204-0037	E26-00-1204-0038	E26-00-1204-0039	E26-00-1204-0040
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.63	6.54	6.34	6.79	5.91
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.053	0.023	0.019	0.019	0.178
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.84	3.53	3.29	5.23	5.52
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1280	1580	1480	2350	2480
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	570	706	660	1050	1110
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.11	1.07	1.21	2.60	1.48
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	301	291	331	708	403
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	135	130	148	316	180
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.59	0.75	0.26	0.31	1.74
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	514	654	227	272	1530
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	230	292	101	122	682
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.04	0.02	0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	8.3	3.8	2.3	< 1	1.1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	3.7	1.7	1.0	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.11	< 0.01	0.038	< 0.01	0.045
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.4	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	60	65	68	64	62
Magnesium - Base Saturation	%	** Calculation	<0.1	24	20	25	32	17
Potassium - Base Saturation	%	** Calculation	<0.1	12	14	5.4	3.8	20
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.5	0.4	0.3	0.4	0.6
Aluminium - Base Saturation	%	** Calculation	<0.1	0.9	0.4	0.2	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.6	3.3	2.7	2.0	3.7

Certificate of Analysis

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			Client Sample ID:	187	187	187	187	188
			Sample Depth:	0 - 10	10--20	25 - 35	40 - 50	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0036	E26-00-1204-0037	E26-00-1204-0038	E26-00-1204-0039	E26-00-1204-0040
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.7	5.4	4.8	8.2	8.8
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.6	17.7	3.7	0.8	3.0
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	3.3	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.6	14.4	3.7	0.8	3.0
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	55.7	56.5	53.5	53.2	20.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.4	14.9	22.1	15.3	52.9
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.3	4.2	8.2	7.9	13.2
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.1	6.7	12.6	22.8	10.8
Colour Code	---	** Inhouse S84	---	7.5YR 4/4	10YR 5/4	7.5YR 5/6	7.5YR 5/6	5YR 3/3
Colour Description	---	** Inhouse S84	---	Brown	Yellowish Brown	Strong Brown	Strong Brown	Dark Reddish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	10YR 5/2	---	10YR 5/8, 10YR 6/1	7.5YR 5/6
Munsell Mottle colour	---	** Inhouse S84	---	---	Greyish Brown	---	Yellowish Brown, Grey	Strong Brown
Degree of Mottling	%	** Inhouse S84	---	---	20	---	20, 20	10

			Client Sample ID:	188	188	188	189	189
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0041	E26-00-1204-0042	E26-00-1204-0043	E26-00-1204-0044	E26-00-1204-0045
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.94	7.74	8.45	5.76	5.49
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.025	0.031	0.073	0.181	0.029
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.63	8.35	8.83	3.29	1.34
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1630	3750	3960	1480	600
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	728	1670	1770	659	268
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.60	1.83	2.18	1.54	0.46
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	165	497	595	420	125
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	73.5	222	266	188	55.8
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.64	0.50	0.35	1.50	0.47
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	562	440	305	1310	408
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	251	197	136	586	182
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.35	0.30	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	182	156	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	81.4	69.5	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	0.02	0.29
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.8	1.4	< 1	3.7	58

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			Client Sample ID:	188	188	188	189	189
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0041	E26-00-1204-0042	E26-00-1204-0043	E26-00-1204-0044	E26-00-1204-0045
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	1.6	26
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	0.11	0.22
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	2.4	4.9
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	1.1	2.2
Calcium - Base Saturation	%	** Calculation	<0.1	73	76	76	51	48
Magnesium - Base Saturation	%	** Calculation	<0.1	12	17	19	24	17
Potassium - Base Saturation	%	** Calculation	<0.1	13	4.6	3.0	23	17
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.2	3.2	2.6	0.7	0.4
Aluminium - Base Saturation	%	** Calculation	<0.1	0.2	< 0.1	< 0.1	0.3	10
Calcium/Magnesium Ratio	---	** Calculation	<0.1	6.0	4.6	4.0	2.1	2.9
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.9	11.0	11.7	6.5	2.8
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.1	10.9	4.0	1.3	0.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.0	4.3	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.1	6.6	4.0	1.3	0.5
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.7	15.5	36.2	57.3	50.0
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	53.6	32.9	37.6	27.2	37.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.0	8.4	4.4	7.4	4.0
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.8	32.3	17.9	6.8	7.9
Colour Code	---	** Inhouse S84	---	5YR 5/6	7.5YR 5/8	10YR 4/4	7.5YR 3/4	7.5YR 4/6
Colour Description	---	** Inhouse S84	---	Yellowish Red	Strong Brown	Dark Yellowish Brown	Dark Brown	Strong Brown
Munsell Mottle Colour	---	** Inhouse S84	---	5YR 4/3	7.5YR 3/1	2.5Y 6/6, 10YR 2/2	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Reddish Brown	Very Dark Grey	Olive Yellow, Very Dark Brown	---	---
Degree of Mottling	%	** Inhouse S84	---	20	5	20, 5	---	---

			Client Sample ID:	189	189	190	190	190
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0046	E26-00-1204-0047	E26-00-1204-0048	E26-00-1204-0049	E26-00-1204-0050
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.86	5.80	6.00	6.58	5.97
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.025	0.040	0.048	0.022	0.022
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.35	3.72	2.62	1.51	2.56

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			Client Sample ID:	189	189	190	190	190
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0046	E26-00-1204-0047	E26-00-1204-0048	E26-00-1204-0049	E26-00-1204-0050
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1950	1670	1180	678	1150
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	872	746	525	303	514
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	3.61	5.11	1.42	1.49	4.45
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	983	1390	387	406	1210
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	439	621	173	181	540
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.36	0.55	0.94	0.54	0.72
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	314	477	824	476	626
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	140	213	368	213	280
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.13	0.37	< 0.065	< 0.065	0.10
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	67.5	192	< 33	< 33	51.3
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	30.2	85.8	< 15	< 15	22.9
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.10	0.25	0.03	0.01	0.11
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	20	49	5.8	2.2	23
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	8.7	22	2.6	< 1	10
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.080	0.17	0.054	< 0.01	0.12
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.8	3.8	1.2	< 1	2.6
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	1.7	< 1	< 1	1.2
Calcium - Base Saturation	%	** Calculation	<0.1	50	37	51	42	32
Magnesium - Base Saturation	%	** Calculation	<0.1	42	50	28	42	55
Potassium - Base Saturation	%	** Calculation	<0.1	4.2	5.4	18	15	8.9
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.5	3.7	1.0	0.7	1.2
Aluminium - Base Saturation	%	** Calculation	<0.1	1.1	2.4	0.6	0.3	1.4
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.2	0.7	1.8	1.0	0.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	8.6	10.2	5.1	3.6	8.1
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	< 0.1	0.9	1.7	2.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	0.4	1.7
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	< 0.1	0.9	1.4	0.6
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	34.0	31.9	38.1	27.1	17.7
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	39.3	34.1	41.1	38.6	30.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.9	6.6	10.8	19.0	9.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.3	27.4	9.0	13.5	39.6
Colour Code	---	** Inhouse S84	---	7.5YR 5/8	2.5YR 4/6	7.5YR 3/4	5YR 5/6	2.5YR 3/6
Colour Description	---	** Inhouse S84	---	Strong Brown	Red	Dark Brown	Yellowish Red	Dark Red
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 4/3, 10YR 6/2, 5YR 4/6	10YR 7/1, 10YR 6/8	5YR 5/6	2.5YR 3/6	10YR 6/4
Munsell Mottle colour	---	** Inhouse S84	---	Brown, Light Brownish Grey, Yellowish Red	Light Grey, Brownish Yellow	Yellowish Red	Dark Red	Light Yellowish Brown
Degree of Mottling	%	** Inhouse S84	---	5, 10, 10	10, 15	20	5	20

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	190	191	191	191	191
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0051	E26-00-1204-0052	E26-00-1204-0053	E26-00-1204-0054	E26-00-1204-0055
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.78	5.80	6.26	6.86	7.37
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.025	0.169	0.012	0.019	0.020
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.11	4.91	2.04	5.27	4.49
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	946	2200	914	2370	2010
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	422	983	408	1060	899
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	5.38	2.90	0.72	3.28	3.29
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1460	790	196	893	896
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	653	353	87.3	399	400
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.42	1.37	0.41	0.65	0.61
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	366	1200	358	567	534
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	164	536	160	253	239
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.28	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	143	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	63.7	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.03	0.02	0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.2	5.9	4.5	2.8	2.3
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.4	2.6	2.0	1.3	1.0
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.093	0.030	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	2.1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	26	52	63	57	53
Magnesium - Base Saturation	%	** Calculation	<0.1	66	31	22	35	39
Potassium - Base Saturation	%	** Calculation	<0.1	5.1	15	13	7.0	7.2
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	3.4	0.5	0.6	0.5	0.6
Aluminium - Base Saturation	%	** Calculation	<0.1	0.2	0.3	0.7	0.2	0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.4	1.7	2.8	1.6	1.4
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	8.2	9.4	3.2	9.3	8.5
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.8	4.7	0.5	0.5	0.7
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.2	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.8	3.5	0.5	0.5	0.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.5	22.4	27.9	17.0	19.0
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	39.1	43.4	44.2	33.0	37.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	8.4	15.6	14.4	11.1	7.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	27.3	13.9	13.1	38.5	35.6
Colour Code	---	** Inhouse S84	---	2.5YR 3/6	7.5YR 4/4	5YR 4/4	5YR 5/8	2.5YR 4/8
Colour Description	---	** Inhouse S84	---	Dark Red	Brown	Reddish Brown	Yellowish Red	Red
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 5/4, 10YR 2/1	---	---	5YR 3/2	---
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Brown	---	---	Dark Reddish Brown	---

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	190	191	191	191	191
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0051	E26-00-1204-0052	E26-00-1204-0053	E26-00-1204-0054	E26-00-1204-0055
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	20	---	---	5	---

			Client Sample ID:	192	192	192	192	193
			Sample Depth:	0 - 10	20 -30	40 - 50	60 - 70	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0056	E26-00-1204-0057	E26-00-1204-0058	E26-00-1204-0059	E26-00-1204-0060
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.15	6.50	6.83	7.50	5.51
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.032	0.024	0.032	0.028	0.090
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.61	4.46	5.04	6.19	4.39
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1620	2000	2260	2780	1970
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	723	893	1010	1240	880
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.66	1.61	7.29	6.33	1.93
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	451	438	1990	1720	524
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	201	195	886	769	234
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.23	0.98	0.53	0.41	0.79
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	1080	862	462	360	689
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	480	385	206	161	307
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.10	0.07	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	49.0	35.3	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	21.9	15.8	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.07	0.02	0.01	< 0.01	0.07
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	15	3.2	2.5	1.6	14
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	6.6	1.4	1.1	< 1	6.4
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.089	0.033	< 0.01	< 0.01	0.12
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.0	< 1	< 1	< 1	2.7
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	1.2
Calcium - Base Saturation	%	** Calculation	<0.1	54	63	39	48	60
Magnesium - Base Saturation	%	** Calculation	<0.1	25	23	56	49	26
Potassium - Base Saturation	%	** Calculation	<0.1	18	14	4.1	3.2	11
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.3	0.1	0.7	0.5	0.5
Aluminium - Base Saturation	%	** Calculation	<0.1	1.1	0.2	< 0.1	< 0.1	1.0
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.2	2.8	0.7	1.0	2.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	6.7	7.1	13.0	13.0	7.3
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	13.1	12.9	< 0.1	4.8	5.6
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.5	7.1	< 0.1	2.4	3.5
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.6	5.8	< 0.1	2.5	2.2
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.0	11.1	5.3	7.1	17.7

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	192	192	192	192	193
			Sample Depth:	0 - 10	20 -30	40 - 50	60 - 70	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0056	E26-00-1204-0057	E26-00-1204-0058	E26-00-1204-0059	E26-00-1204-0060
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	44.8	45.4	29.9	45.1	42.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.4	17.8	15.6	14.0	15.4
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	13.7	12.7	49.2	29.0	18.8
Colour Code	---	** Inhouse S84	---	7.5YR 4/4	7.5YR 4/4	5YR 5/8	5YR 5/8	7.5YR 4/3
Colour Description	---	** Inhouse S84	---	Brown	Brown	Yellowish Red	Yellowish Red	Brown
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 6/3	7.5YR 6/4	---	10YR 4/2, 10YR 8/2	---
Munsell Mottle colour	---	** Inhouse S84	---	Light Brown	Light Brown	---	Dark Greyish Brown, Very Pale Brown	---
Degree of Mottling	%	** Inhouse S84	---	30	30	---	30, 10	---

			Client Sample ID:	193	193	193	194	194
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0061	E26-00-1204-0062	E26-00-1204-0063	E26-00-1204-0064	E26-00-1204-0065
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.87	7.17	8.68	6.09	6.98
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.034	0.037	0.153	0.040	0.016
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.83	5.36	8.72	2.65	1.99
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2620	2400	3910	1190	891
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1170	1070	1750	532	398
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	6.37	7.52	8.81	1.21	0.79
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1730	2050	2400	330	215
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	774	914	1070	147	96.0
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.11	0.90	0.69	0.93	0.42
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	975	791	608	811	370
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	435	353	271	362	165
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.08	0.15	0.38	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	40.6	79.1	193	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	18.1	35.3	86.2	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.02	0.02	0.04	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.8	3.6	3.8	8.1	2.7
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.7	1.6	1.7	3.6	1.2
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	0.084	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	1.9	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	43	38	47	54	61
Magnesium - Base Saturation	%	** Calculation	<0.1	47	54	47	25	24
Potassium - Base Saturation	%	** Calculation	<0.1	8.3	6.5	3.7	19	13
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.6	1.1	2.0	0.3	0.9

Certificate of Analysis

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			Client Sample ID:	193	193	193	194	194
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0061	E26-00-1204-0062	E26-00-1204-0063	E26-00-1204-0064	E26-00-1204-0065
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	0.1	0.1	0.8	0.4
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.9	0.7	1.0	2.2	2.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	13.4	14.0	18.6	4.9	3.2
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.7	0.9	10.3	3.8	3.2
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	4.5	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.7	0.9	5.8	3.8	3.2
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.4	4.3	2.4	30.7	22.9
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	27.7	24.7	33.7	46.5	49.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.0	19.5	20.0	9.4	11.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	55.2	50.7	33.8	9.6	13.6
Colour Code	---	** Inhouse S84	---	5YR 5/8	5YR 4/6	10YR 5/4	7.5YR 3/4	5YR 5/6
Colour Description	---	** Inhouse S84	---	Yellowish Red	Yellowish Red	Brown	Dark Brown	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	---	7.5YR 4/2, 7.5YR 4/3	10YR 7/2, 10YR 5/6	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	Brown, Brown	Light Grey, Yellowish Brown	---	---
Degree of Mottling	%	** Inhouse S84	---	---	20,20	40,10	---	---

			Client Sample ID:	194	194	195	195	195
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0066	E26-00-1204-0067	E26-00-1204-0068	E26-00-1204-0069	E26-00-1204-0070
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.13	8.67	5.86	6.23	7.51
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.041	0.064	0.044	0.015	0.028
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.47	4.14	3.10	2.68	8.74
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2460	1860	1390	1200	3920
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1100	830	620	538	1750
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	4.90	5.59	1.26	1.60	3.90
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1330	1520	343	435	1060
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	596	680	153	194	474
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.74	0.68	0.87	0.43	0.72
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	645	593	765	381	627
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	288	265	341	170	280
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.26	0.44	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	132	229	< 33	< 33	< 33

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			Client Sample ID:	194	194	195	195	195
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0066	E26-00-1204-0067	E26-00-1204-0068	E26-00-1204-0069	E26-00-1204-0070
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	58.8	102	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	0.02	0.05	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	< 1	< 1	3.6	11	< 1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	1.6	4.9	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.11	0.058	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	2.5	1.3	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	48	38	57	55	65
Magnesium - Base Saturation	%	** Calculation	<0.1	43	52	23	33	29
Potassium - Base Saturation	%	** Calculation	<0.1	6.5	6.2	16	9.0	5.3
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	2.3	4.1	0.6	0.3	0.4
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.3	1.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.1	0.7	2.5	1.7	2.2
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	11.4	10.9	5.4	4.8	13.4
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.6	0.5	3.8	16.9	5.9
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	0.5	8.5	4.7
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.6	0.5	3.3	8.5	1.3
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.5	29.1	35.0	23.1	5.8
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	41.1	26.9	45.0	37.6	36.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.5	11.0	9.7	9.8	13.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	41.2	32.6	6.4	12.7	38.1
Colour Code	---	** Inhouse S84	---	2.5YR 4/6	10YR 5/6	7.5YR 4/6	7.5YR 5/6	5YR 5/6
Colour Description	---	** Inhouse S84	---	Red	Yellowish Brown	Strong Brown	Strong Brown	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 6/4	5YR 5/6	---	---	10YR 5/8, 5YR 5/4
Munsell Mottle colour	---	** Inhouse S84	---	Light Yellowish Brown	Yellowish Red	---	---	Yellowish Brown, Reddish Brown
Degree of Mottling	%	** Inhouse S84	---	20	40	---	---	15,15

			Client Sample ID:	195	196	196	196	196
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	60 - 70
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0071	E26-00-1204-0072	E26-00-1204-0073	E26-00-1204-0074	E26-00-1204-0075
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.13	5.62	5.78	5.79	7.00

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			Client Sample ID:	195	196	196	196	196
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	60 - 70
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0071	E26-00-1204-0072	E26-00-1204-0073	E26-00-1204-0074	E26-00-1204-0075
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.024	0.091	0.062	0.109	0.246
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.08	6.54	4.17	3.36	4.13
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2280	2940	1870	1510	1860
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1020	1310	836	674	829
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	6.47	2.89	6.57	9.04	10.3
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1760	788	1790	2460	2800
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	786	352	798	1100	1250
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.38	1.01	0.83	0.78	0.76
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	335	881	723	682	663
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	150	393	323	304	296
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.13	< 0.065	0.25	0.49	1.03
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	66.2	< 33	128	251	529
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	29.6	< 15	57.4	112	236
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.02	0.17	0.08	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	< 1	3.5	34	16	< 1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	1.6	15	7.2	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.12	0.15	0.13	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	2.7	3.4	2.9	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	1.2	1.5	1.3	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	42	62	34	24	26
Magnesium - Base Saturation	%	** Calculation	<0.1	54	27	54	65	63
Potassium - Base Saturation	%	** Calculation	<0.1	3.2	9.5	6.8	5.6	4.7
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.1	0.3	2.1	3.5	6.3
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	0.2	1.4	0.6	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.8	2.3	0.6	0.4	0.4
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	12.1	10.6	12.1	13.9	16.2
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	5.4	6.8	< 0.1	< 0.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	4.0	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	5.4	2.8	< 0.1	< 0.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.9	36.0	6.4	1.6	1.3
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	37.8	34.6	21.0	18.2	13.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	13.8	13.2	12.8	14.9	23.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	32.5	10.9	53.0	65.3	61.5
Colour Code	---	** Inhouse S84	---	10YR 6/6	7.5YR 2.5/2	5YR 4/6	7.5YR 5/6	10YR 4/4
Colour Description	---	** Inhouse S84	---	Brownish Yellow	Very Dark Brown	Yellowish Red	Strong Brown	Dark Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 6/8, 5YR 5/8	---	---	---	5YR 4/6, 10YR 5/6
Munsell Mottle colour	---	** Inhouse S84	---	Brownish Yellow, Yellowish Red	---	---	---	Yellowish Red, Yellowish Brown

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			Client Sample ID:	195	196	196	196	196
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	60 - 70
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0071	E26-00-1204-0072	E26-00-1204-0073	E26-00-1204-0074	E26-00-1204-0075
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Degree of Mottling	%	** Inhouse S84	---	20,10	---	---	---	15,10

			Client Sample ID:	197	197	197	198	198
			Sample Depth:	0 - 10	20 -30	40 - 50	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0076	E26-00-1204-0077	E26-00-1204-0078	E26-00-1204-0079	E26-00-1204-0080
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.58	5.84	5.83	5.99	6.24
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.056	0.023	0.087	0.044	0.016
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.20	1.15	2.81	1.94	1.17
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1440	516	1260	871	526
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	641	230	563	389	235
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.35	1.01	6.80	1.20	0.93
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	368	275	1850	328	254
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	164	123	827	146	113
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.62	0.48	0.40	0.98	0.30
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	546	417	349	857	264
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	244	186	156	383	118
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.51	< 0.065	0.07
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	260	< 33	34.4
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	116	< 15	15.3
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.07	0.17	0.08	0.04	0.04
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	14	34	15	7.5	7.8
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	6.2	15	6.8	3.3	3.5
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.12	0.13	0.085	0.065	0.035
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.7	2.8	1.9	1.5	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.2	1.3	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	59	39	26	45	46
Magnesium - Base Saturation	%	** Calculation	<0.1	25	34	64	28	37
Potassium - Base Saturation	%	** Calculation	<0.1	12	16	3.7	23	12
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.9	1.5	4.7	1.1	2.6
Aluminium - Base Saturation	%	** Calculation	<0.1	1.3	5.7	0.7	0.9	1.5
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.4	1.1	0.4	1.6	1.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.4	3.0	10.7	4.3	2.5
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.9	6.8	14.5	6.8	6.8
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.4	4.9	1.4	1.5
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.9	5.4	9.7	5.4	5.3
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	38.6	39.3	32.5	26.9	30.8

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			Client Sample ID:	197	197	197	198	198
			Sample Depth:	0 - 10	20 -30	40 - 50	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0076	E26-00-1204-0077	E26-00-1204-0078	E26-00-1204-0079	E26-00-1204-0080
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	33.2	31.8	12.4	40.2	46.0
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.4	10.7	3.6	17.5	8.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.9	11.5	37.0	8.6	8.4
Colour Code	---	** Inhouse S84	---	10YR 4/3	10YR 5/4	10YR 5/6	10YR 5/4	7.5YR 5/6
Colour Description	---	** Inhouse S84	---	Brown	Yellowish Brown	Yellowish Brown	Yellowish Brown	Strong Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	10YR 7/6	2.5YR 4/6, 10YR 6/2	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	Yellow	Red, Light Brownish Grey	---	---
Degree of Mottling	%	** Inhouse S84	---	---	40	5,5	---	---

			Client Sample ID:	198	198	199	199	199
			Sample Depth:	40 - 50	65 - 75	0 - 10	15 - 25	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0081	E26-00-1204-0082	E26-00-1204-0083	E26-00-1204-0084	E26-00-1204-0085
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.00	6.34	5.76	6.08	5.57
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.028	0.082	0.037	0.035	0.026
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.21	1.10	1.02	1.13	1.41
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	991	495	459	508	631
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	443	221	205	227	282
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	5.34	6.80	0.82	0.97	5.20
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1450	1850	224	264	1420
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	649	826	100	118	632
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.25	0.26	0.71	0.52	0.68
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	221	227	624	456	599
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	98.7	101	278	204	268
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.39	0.79	< 0.065	< 0.065	0.09
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	201	409	< 33	< 33	47.6
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	89.8	182	< 15	< 15	21.3
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.39	0.03	0.20	0.07	1.3
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	79	5.0	40	14	260
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	35	2.2	18	6.1	120
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.25	0.033	0.14	0.068	0.59
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	5.6	< 1	3.2	1.5	13
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	2.5	< 1	1.4	< 1	5.9
Calcium - Base Saturation	%	** Calculation	<0.1	25	12	35	41	15
Magnesium - Base Saturation	%	** Calculation	<0.1	60	75	28	35	56
Potassium - Base Saturation	%	** Calculation	<0.1	2.9	2.9	24	19	7.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	4.4	8.8	1.1	0.7	1.0
Aluminium - Base Saturation	%	** Calculation	<0.1	4.4	0.3	6.8	2.4	14

Certificate of Analysis

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			Client Sample ID:	198	198	199	199	199
			Sample Depth:	40 - 50	65 - 75	0 - 10	15 - 25	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0081	E26-00-1204-0082	E26-00-1204-0083	E26-00-1204-0084	E26-00-1204-0085
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.4	0.2	1.2	1.2	0.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	8.8	9.0	2.9	2.8	9.3
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.4	19.9	22.0	67.8	9.6
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.6	16.9	12.5	57.3	5.6
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.9	3.0	9.6	10.5	4.0
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.7	16.8	20.6	9.2	11.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	29.3	27.9	40.3	15.9	29.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.3	5.7	8.2	3.5	13.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	48.2	29.7	8.9	3.5	36.8
Colour Code	---	** Inhouse S84	---	10YR 5/6	10YR 5/6	7.5YR 4/6	5YR 5/6	5YR 5/8
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Yellowish Brown	Strong Brown	Yellowish Red	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	5YR 5/6, 10YR 6/4	5YR 5/8	---	---	7.5YR 4/2, 10YR 6/4
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Red, Light Yellowish Brown	Yellowish Red	---	---	Brown, Light Yellowish Brown
Degree of Mottling	%	** Inhouse S84	---	40,5	40	---	---	20,20

			Client Sample ID:	200	200	200	200	201
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0086	E26-00-1204-0087	E26-00-1204-0088	E26-00-1204-0089	E26-00-1204-0090
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.59	6.57	7.57	8.43	5.62
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.060	0.025	0.032	0.140	0.030
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.73	2.68	7.26	9.15	1.93
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1220	1200	3260	4110	866
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	546	537	1450	1830	386
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.17	0.54	2.22	5.48	0.83
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	318	148	605	1490	227
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	142	66.2	270	666	101
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.74	0.33	0.35	0.43	0.44
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	652	287	307	379	386
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	291	128	137	169	172
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	0.26	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	131	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	58.7	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.11	< 0.01	< 0.01	< 0.01	0.21

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			Client Sample ID:	200	200	200	200	201
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0086	E26-00-1204-0087	E26-00-1204-0088	E26-00-1204-0089	E26-00-1204-0090
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	23	2.0	1.1	1.4	43
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	10	< 1	< 1	< 1	19
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.11	< 0.01	< 0.01	< 0.01	0.17
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.5	< 1	< 1	< 1	3.8
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.1	< 1	< 1	< 1	1.7
Calcium - Base Saturation	%	** Calculation	<0.1	56	75	73	60	53
Magnesium - Base Saturation	%	** Calculation	<0.1	24	15	22	36	23
Potassium - Base Saturation	%	** Calculation	<0.1	15	9.1	3.5	2.8	12
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.4	0.9	0.6	1.7	1.1
Aluminium - Base Saturation	%	** Calculation	<0.1	2.3	0.3	< 0.1	< 0.1	5.8
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.3	4.9	3.3	1.7	2.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.9	3.6	9.9	15.3	3.6
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.2	5.3	3.7	22.9	6.7
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.0	0.5	0.7	21.9	1.3
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.2	4.9	3.1	1.0	5.4
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.2	22.4	17.7	2.7	27.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	34.2	35.3	22.8	7.4	28.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.5	23.2	10.7	26.9	24.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	17.8	13.8	45.0	40.2	12.8
Colour Code	---	** Inhouse S84	---	10YR 4/4	7.5YR 6/4	2.5YR 4/8	10YR 6/2	10YR 4/3
Colour Description	---	** Inhouse S84	---	Dark Yellowish Brown	Light Brown	Red	Light Brownish Grey	Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	10YR 6/3	10YR 6/6	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	Pale Brown	Brownish Yellow	---
Degree of Mottling	%	** Inhouse S84	---	---	---	40	30	---

			Client Sample ID:	201	201	201	202	202
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0091	E26-00-1204-0092	E26-00-1204-0093	E26-00-1204-0094	E26-00-1204-0095
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.25	5.80	6.01	5.55	6.48
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.019	0.034	0.046	0.106	0.021
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	1.93	3.90	4.13	2.87	2.40

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			Client Sample ID:	201	201	201	202	202
			Sample Depth:	20 -30	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0091	E26-00-1204-0092	E26-00-1204-0093	E26-00-1204-0094	E26-00-1204-0095
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	865	1750	1860	1290	1080
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	386	783	828	575	480
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.75	3.98	4.79	1.24	0.61
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	203	1080	1300	339	165
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	90.8	483	583	151	73.5
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.36	0.29	0.30	1.29	0.61
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	313	253	260	1130	534
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	140	113	116	505	238
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.12	0.24	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	60.5	123	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	27.0	55.1	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.04	0.10	0.03	0.08	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	7.6	21	6.7	17	2.3
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	3.4	9.3	3.0	7.4	1.0
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.043	0.12	0.076	0.091	0.015
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	2.8	1.7	2.0	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	1.2	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	61	46	43	51	66
Magnesium - Base Saturation	%	** Calculation	<0.1	24	47	50	22	17
Potassium - Base Saturation	%	** Calculation	<0.1	11	3.4	3.1	23	17
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.7	1.4	2.5	0.4	0.5
Aluminium - Base Saturation	%	** Calculation	<0.1	1.2	1.2	0.3	1.5	0.3
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.6	1.0	0.9	2.3	4.0
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	3.1	8.5	9.6	5.6	3.7
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.0	2.2	1.6	3.6	4.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.0	2.2	1.6	3.6	4.3
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.0	22.2	24.4	30.1	22.7
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	32.2	21.6	23.5	40.2	44.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.8	14.6	11.9	13.6	14.8
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	16.0	39.4	38.7	12.4	14.0
Colour Code	---	** Inhouse S84	---	10YR 6/4	10YR 5/8	10YR 5/6	7.5YR 3/4	7.5YR 4/6
Colour Description	---	** Inhouse S84	---	Light Yellowish Brown	Yellowish Brown	Yellowish Brown	Dark Brown	Strong Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	2.5YR 4/8, 10YR 6/3	5YR 5/8, 10YR 6/1	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	Red, Pale Brown	Yellowish Red, Grey	---	---
Degree of Mottling	%	** Inhouse S84	---	---	5, 25	40, 5	---	---

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			Client Sample ID:	202	202	203	203	203
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0096	E26-00-1204-0097	E26-00-1204-0098	E26-00-1204-0099	E26-00-1204-0100
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.04	7.57	6.22	5.42	6.02
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.023	0.025	0.358	0.035	0.054
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.98	5.26	3.97	3.15	1.54
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2690	2360	1780	1420	692
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1200	1050	795	632	309
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	3.33	3.84	1.83	6.17	0.98
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	906	1050	497	1680	267
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	404	467	222	749	119
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.62	0.45	1.63	0.74	0.67
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	542	397	1430	649	588
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	242	177	639	290	262
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.10	< 0.065	0.31	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	49.4	< 33	159	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	22.0	< 15	71.0	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	0.02	1.5	0.06
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.3	1.0	4.3	300	11
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	1.9	130	5.1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.16	0.63	0.035
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	3.6	14	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.6	6.3	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	60	54	52	25	46
Magnesium - Base Saturation	%	** Calculation	<0.1	33	40	24	49	30
Potassium - Base Saturation	%	** Calculation	<0.1	6.2	4.7	21	5.9	20
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.6	1.0	0.7	2.5	1.1
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.3	12	1.7
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.8	1.4	2.2	0.5	1.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	10.0	9.7	7.7	12.5	3.3
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	10.8	2.2	1.2	8.2
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.1	5.6	< 0.1	< 0.1	1.8
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	5.2	2.2	1.2	6.5
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.8	26.5	31.3	13.6	30.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	35.8	27.7	27.8	18.2	27.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.4	6.4	19.9	14.1	20.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	42.4	28.6	18.8	52.9	13.3
Colour Code	---	** Inhouse S84	---	5YR 4/6	5YR 5/6	10YR 5/3	10YR 5/6	10YR 5/4
Colour Description	---	** Inhouse S84	---	Yellowish Red	Yellowish Red	Brown	Yellowish Red	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	7.5YR 5/8, 10YR 7/2	---

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			Client Sample ID:	202	202	203	203	203
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0096	E26-00-1204-0097	E26-00-1204-0098	E26-00-1204-0099	E26-00-1204-0100
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	Strong Brown, Light Grey	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	15, 1	---

			Client Sample ID:	203	204	204	204	204
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0101	E26-00-1204-0102	E26-00-1204-0103	E26-00-1204-0104	E26-00-1204-0105
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.81	5.79	6.34	5.83	5.69
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.113	0.049	0.014	0.018	0.026
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.31	2.26	1.36	2.21	1.63
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1940	1010	610	991	732
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	864	453	272	443	327
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	15.4	1.69	1.07	4.38	5.79
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	4180	459	290	1190	1580
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	1870	205	130	533	703
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.48	0.77	0.15	0.31	0.25
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	423	678	135	269	218
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	189	303	60.1	120	97.5
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	2.11	0.08	< 0.065	0.16	0.37
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	1090	41.4	< 33	84.8	189
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	486	18.5	< 15	37.9	84.4
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.07	0.04	0.23	0.60
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.5	14	7.4	47	120
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	6.1	3.3	21	54
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.087	0.061	0.22	0.49
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	2.0	1.4	5.0	11
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	2.2	4.9
Calcium - Base Saturation	%	** Calculation	<0.1	19	46	50	29	18
Magnesium - Base Saturation	%	** Calculation	<0.1	69	34	39	58	63
Potassium - Base Saturation	%	** Calculation	<0.1	2.2	16	5.6	4.1	2.7
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	9.5	1.6	2.1	2.2	4.0
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	1.4	1.3	3.1	6.6
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.3	1.3	1.3	0.5	0.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	22.3	5.0	2.7	7.5	9.1
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.7	2.8	19.9	10.9	12.2
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	6.8	1.8	2.2
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.7	2.8	13.1	9.1	10.0

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			Client Sample ID:	203	204	204	204	204
			Sample Depth:	65 - 75	0 - 10	20 -30	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0101	E26-00-1204-0102	E26-00-1204-0103	E26-00-1204-0104	E26-00-1204-0105
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.9	44.0	42.3	34.9	26.4
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.5	25.1	20.5	16.8	26.3
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.1	15.0	8.8	10.2	7.4
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	38.8	13.2	8.5	27.2	27.7
Colour Code	---	** Inhouse S84	---	10YR 6/8	10YR 4/4	10YR 6/4	10YR 5/8	10YR 5/8
Colour Description	---	** Inhouse S84	---	Brownish Yellow	Dark Yellowish Brown	Light Yellowish Brown	Yellowish Brown	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 6/6, 10YR 6/2	---	---	10YR 6/3, 2.5YR 5/8	5YR 5/6, 10YR 6/8
Munsell Mottle colour	---	** Inhouse S84	---	Brownish Yellow, Light Brownish Grey	---	---	Pale Brown, Red	Yellowish Red, Brownish Yellow
Degree of Mottling	%	** Inhouse S84	---	40, 5	---	---	15, 10	30, 10

			Client Sample ID:	205	205	205	205	206
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0106	E26-00-1204-0107	E26-00-1204-0108	E26-00-1204-0109	E26-00-1204-0110
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.14	6.08	5.84	5.59	5.17
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.050	0.013	0.013	0.029	0.107
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.28	1.65	1.50	2.01	1.86
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1470	743	671	902	833
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	657	332	300	402	372
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.34	0.42	2.21	6.98	1.34
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	365	114	602	1900	364
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	163	50.8	269	848	163
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.08	0.29	0.17	0.36	0.44
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	943	257	150	316	386
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	421	115	66.8	141	172
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.08	0.21	0.14
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	39.9	110	71.7
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	17.8	49.1	32.0
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.07	0.17	0.40	0.27
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.3	13	34	81	55
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.5	5.8	15	36	24
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.055	0.070	0.16	0.39	0.25
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.2	1.6	3.5	8.6	5.5
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.6	3.9	2.5
Calcium - Base Saturation	%	** Calculation	<0.1	57	66	35	19	43
Magnesium - Base Saturation	%	** Calculation	<0.1	23	17	52	67	31

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			Client Sample ID:	205	205	205	205	206
			Sample Depth:	0 - 10	20 -30	40 - 50	65 - 75	0 - 10
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0106	E26-00-1204-0107	E26-00-1204-0108	E26-00-1204-0109	E26-00-1204-0110
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Potassium - Base Saturation	%	** Calculation	<0.1	19	12	4.0	3.5	10
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.5	0.5	1.8	2.1	3.2
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	2.6	4.0	3.9	6.3
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.4	4.0	0.7	0.3	1.4
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.8	2.5	4.3	10.4	4.3
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.6	9.4	7.7	3.3	46.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.9	1.7	3.1	< 0.1	39.4
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.8	7.7	4.6	3.3	7.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.9	28.2	17.8	17.8	16.5
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	34.0	35.2	35.3	30.9	20.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	19.8	17.1	15.2	8.0	7.5
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.7	10.1	24.0	40.0	8.9
Colour Code	---	** Inhouse S84	---	10YR 4/3	10YR 5/4	10YR 6/4	10YR 6/8	10YR 4/3
Colour Description	---	** Inhouse S84	---	Brown	Yellowish Brown	Light Yellowish Brown	Brownish Yellow	Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	10YR 7/2, 2.5YR 4/8	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	Light Grey, Red	---
Degree of Mottling	%	** Inhouse S84	---	---	---	---	10, 10	---

			Client Sample ID:	206	206	206	207	207
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0111	E26-00-1204-0112	E26-00-1204-0113	E26-00-1204-0114	E26-00-1204-0115
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.24	7.28	8.11	6.62	7.13
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.021	0.106	0.286	0.038	0.020
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	0.75	4.54	2.50	2.83	2.21
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	338	2040	1120	1270	992
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	151	909	501	568	443
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.70	6.58	6.92	1.66	1.22
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	190	1790	1880	453	333
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	84.8	800	841	202	149
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.22	0.48	0.48	0.87	0.37
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	195	416	423	762	327
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	87.2	186	189	340	146
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.14	1.24	2.62	0.09	0.14

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			Client Sample ID:	206	206	206	207	207
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	20 -30
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0111	E26-00-1204-0112	E26-00-1204-0113	E26-00-1204-0114	E26-00-1204-0115
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	72.8	639	1350	46.3	74.7
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	32.5	285	603	20.7	33.3
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.05	0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	9.5	2.4	1.7	1.7	1.9
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	4.2	1.1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.076	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.7	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	39	35	20	52	56
Magnesium - Base Saturation	%	** Calculation	<0.1	36	51	55	30	31
Potassium - Base Saturation	%	** Calculation	<0.1	12	3.7	3.9	16	9.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	7.3	9.7	21	1.6	3.7
Aluminium - Base Saturation	%	** Calculation	<0.1	2.4	< 0.1	< 0.1	0.2	0.2
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.1	0.7	0.4	1.7	1.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	1.9	12.8	12.5	5.5	4.0
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.4	1.2	14.7	7.9	9.4
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.8	< 0.1	9.4	< 0.1	2.3
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.6	1.2	5.2	7.9	7.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	36.4	18.5	23.8	50.2	31.5
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	27.5	22.2	20.9	21.0	24.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.9	8.2	6.1	11.7	18.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.7	49.9	34.5	9.3	15.6
Colour Code	---	** Inhouse S84	---	10YR 5/4	10YR 5/4	10YR 5/6	10YR 4/2	10YR 6/3
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Yellowish Brown	Yellowish Brown	Dark Greyish Brown	Pale Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	5YR 5/6	10YR 6/2	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	Yellowish Red	Light Brownish Grey	---	---
Degree of Mottling	%	** Inhouse S84	---	---	40	40	---	---

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			Client Sample ID:	207	207	208	208	208
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0116	E26-00-1204-0117	E26-00-1204-0118	E26-00-1204-0119	E26-00-1204-0120
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.69	8.37	6.63	8.47	8.46
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.029	0.053	0.060	0.090	0.082
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.25	2.08	6.01	10.1	10.8
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1460	932	2700	4540	4850
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	651	416	1200	2030	2160
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	4.15	5.52	1.62	1.69	3.85
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1130	1500	442	461	1050
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	504	671	197	206	468
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.44	0.41	1.25	0.93	1.17
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	384	362	1100	814	1020
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	171	162	490	364	456
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.34	0.78	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	175	401	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	78.2	179	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.01	0.01	0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.4	2.2	2.4	2.7	2.0
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.1	< 1	1.1	1.2	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	40	24	67	79	68
Magnesium - Base Saturation	%	** Calculation	<0.1	51	63	18	13	24
Potassium - Base Saturation	%	** Calculation	<0.1	5.4	4.7	14	7.3	7.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	4.2	8.9	0.3	0.2	0.2
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	0.1	0.1	0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.8	0.4	3.7	6.0	2.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	8.2	8.8	8.9	12.8	15.9
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.0	4.0	19.5	10.2	4.0
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.3	1.0	16.5	3.1	2.0
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.7	3.0	3.1	7.0	2.0
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.9	24.8	9.6	6.2	5.6
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.0	29.4	48.6	46.6	41.1
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.3	12.4	9.4	7.0	7.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	29.8	29.4	12.9	30.1	41.5
Colour Code	---	** Inhouse S84	---	10YR 5/4	10YR 5/3	7.5YR 4/6	2.5YR 2.5/4	5YR 5/6
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Brown	Strong Brown	Dark Reddish Brown	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 5/3, 10YR 5/6	---	---	---	10YR 6/6, 5YR 3/4

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			Client Sample ID:	207	207	208	208	208
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 -30	40 - 50
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0116	E26-00-1204-0117	E26-00-1204-0118	E26-00-1204-0119	E26-00-1204-0120
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Brown, Yellowish Brown	---	---	---	Brownish Yellow, Dark Reddish Brown
Degree of Mottling	%	** Inhouse S84	---	40, 5	---	---	---	5, 5

			Client Sample ID:	209	209	209	209
			Sample Depth:	0 - 10	10--20	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0121	E26-00-1204-0122	E26-00-1204-0123	E26-00-1204-0124
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.05	6.34	7.02	8.28
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.041	0.070	0.027	0.046
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.97	2.18	3.61	3.81
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1330	977	1620	1710
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	595	436	723	764
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.46	1.39	5.29	6.89
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	397	377	1440	1870
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	177	169	643	837
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.14	0.73	0.62	0.60
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	996	639	545	525
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	445	285	243	234
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.26	0.51
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	134	260
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	59.7	116
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	< 0.01	< 0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.5	1.4	1.7	2.0
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.6	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.064	0.015	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.4	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	52	50	37	32
Magnesium - Base Saturation	%	** Calculation	<0.1	26	32	54	58
Potassium - Base Saturation	%	** Calculation	<0.1	20	17	6.4	5.1
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.4	1.2	2.7	4.3
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.2	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.0	1.6	0.7	0.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.7	4.4	9.8	11.8
Total Gravel > 2 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.1	19.2	2.2	2.7
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.3	13.3	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.8	5.9	2.2	2.7

Certificate of Analysis

Request ID: EAL/E26-00-1204 Report ID: E26-00-1204_EALT1_1 Issue date: 27 February 2026

			Client Sample ID:	209	209	209	209
			Sample Depth:	0 - 10	10--20	40 - 50	65 - 75
			Sample Date:	27 January 2026	27 January 2026	27 January 2026	27 January 2026
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E26-00-1204-0121	E26-00-1204-0122	E26-00-1204-0123	E26-00-1204-0124
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.9	21.2	22.1	22.5
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	31.4	32.0	27.3	25.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.6	14.0	12.0	8.2
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.0	13.6	36.5	41.0
Colour Code	---	** Inhouse S84	---	10YR 4/4	7.5YR 5/6	2.5YR 4/6	10YR 5/6
Colour Description	---	** Inhouse S84	---	Dark Yellowish Brown	Strong Brown	Red	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	10YR 5/6, 5YR 5/6	7.5YR 4/6
Munsell Mottle colour	---	** Inhouse S84	---	---	---	Yellowish Brown, Yellowish Brown	Strong Brown
Degree of Mottling	%	** Inhouse S84	---	---	---	5, 20	25

Notes:

- Conversions to kg/ha = mg/kg x 2.24.
- Soluble salts are included in exchangeable cation results. No pre-wash is carried out unless specifically requested.
- The chloride estimate result (Electrical Conductivity x 640) is considered an estimate, and is generally an over-estimate.
- Total Acid Extractable Nutrients indicate a store of nutrients.
- ** denotes NATA accreditation does not cover the performance of this service.
- .. denotes not requested, no data/information or no guidelines available.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (available on request or at scu.edu.au/eal).
- Analysis conducted between sample arrival date and reporting date.
- This report is not to be reproduced except in full.
- Results only relate to the item tested.
- Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
- Guidelines for phosphorus have been reduced for Australian soils.
- National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
- Methods from Rayment and Lyons, 2011. Soil Chemical Methods - Australasia. CSIRO Publishing, Collingwood.
- The Morgan 1 Extract is adapted from 'Science in Agriculture', 'Non-Toxic Farming', and 'LaMotte Soil Handbook'.
- All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
- Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium

Soil - Certificate of Analysis - E25-00-8924

Client:	Minesoils Pty. Ltd.	Laboratory:	Environmental Analysis Laboratory
Contact:	Matt Hemingway	Contact:	EAL Customer Service Team
Address:	PO Box 11034, TAMWORTH, NSW 2340, Australia	Address:	Military Road, East Lismore NSW 2480, Australia
Telephone:	0408 474 248	Telephone:	(02) 6620 3678
Email:	matt@minesoils.com.au	Email:	eal@scu.edu.au

Customer reference:	MS-078 Wilpinjong Study Area 2 2025	Request ID:	EAL /E25-00-8924
Number of samples:	124	Report ID:	E25-00-8924_EALP1_1
Date samples received:	13 August 2025	Issue date:	19 September 2025

Authorised by:	Kris Saville
Position:	Technical Team Leader

Accreditation No. 14960

Comments: EAL is a NATA accredited laboratory (14960), accredited for compliance with ISO/IEC 17025 - Testing.

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	144	144	144	144	145
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0001	E25-00-8924-0002	E25-00-8924-0003	E25-00-8924-0004	E25-00-8924-0005
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	19.0	13.9	17.4	15.8	19.6
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.5	3.6	3.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.4	2.8	2.0	1.3	2.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.6	7.7	3.8	6.8	20.8
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	36.9	41.2	23.9	23.4	47.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	31.3	18.4	12.0	18.4	12.5
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.9	28.3	54.7	47.1	16.3
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.76	6.84	7.10	7.21	6.43
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.063	0.015	0.032	0.044	0.029
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.79	2.92	4.56	3.01	4.44
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1700	1310	2050	1350	1990
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	759	585	913	604	889
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.30	2.50	8.26	7.03	2.06
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	353	681	2250	1910	561
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	157	304	1000	854	251
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.59	0.29	0.41	0.31	0.94
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	1390	250	356	273	821
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	622	112	159	122	367
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.07	0.37	0.53	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	35.1	192	275	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	15.7	85.9	123	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.07	< 0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	14	1.5	1.9	1.4	1.8
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	6.5	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.079	< 0.01	< 0.01	< 0.01	0.038
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.8	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	55	51	34	28	59
Magnesium - Base Saturation	%	** Calculation	<0.1	19	43	61	65	27
Potassium - Base Saturation	%	** Calculation	<0.1	23	4.9	3.0	2.9	12
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.2	1.2	2.7	4.9	0.8
Aluminium - Base Saturation	%	** Calculation	<0.1	1.1	0.1	< 0.1	< 0.1	0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	1.2	< 0.1	< 0.1	< 0.1	0.5
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.9	1.2	0.6	0.4	2.2
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	6.7	5.8	13.6	10.9	7.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	6.8	5.8	13.6	10.9	7.5
Colour Code	---	** Inhouse S84	---	7.5YR 3/3	7.5YR 5/6	2.5YR 4/8	2.5YR 4/4	7.5YR 3/3
Colour Description	---	** Inhouse S84	---	Dark Brown	Strong Brown	Red	Reddish Brown	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	10YR 6/4	7.5YR 4/4, 2.5Y 7/4	---

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	144	144	144	144	145
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0001	E25-00-8924-0002	E25-00-8924-0003	E25-00-8924-0004	E25-00-8924-0005
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	Light Yellowish Brown	Brown, Pale Yellow	---
Degree of Mottling	%	** Inhouse S84	---	---	---	20	20, 20	---

			Client Sample ID:	145	145	145	146	146
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0006	E25-00-8924-0007	E25-00-8924-0008	E25-00-8924-0009	E25-00-8924-0010
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	15.2	18.2	10.6	18.0	14.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.9	1.2	12.4	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.4	5.8	13.6	0.7	0.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.4	17.3	28.1	15.9	15.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	55.2	36.5	22.2	57.3	55.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.0	1.5	0.3	15.2	16.2
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.1	37.7	23.5	10.9	12.5
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.87	6.83	8.78	6.29	6.78
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.023	0.035	0.120	0.026	0.017
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.68	5.51	15.9	2.45	2.12
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1200	2470	7140	1100	951
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	537	1100	3190	490	425
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.52	6.22	5.95	0.90	1.00
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	414	1690	1620	245	271
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	185	756	723	110	121
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.59	0.87	0.45	0.75	0.54
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	517	766	396	660	474
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	231	342	177	295	212
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.20	0.20	< 0.065	0.07
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	104	101	< 33	37.4
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	46.4	45.1	< 15	16.7
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.2	1.8	< 1	3.0	< 1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	1.3	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	0.061	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	1.4	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	145	145	145	146	146
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0006	E25-00-8924-0007	E25-00-8924-0008	E25-00-8924-0009	E25-00-8924-0010
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Calcium - Base Saturation	%	** Calculation	<0.1	55	43	71	58	57
Magnesium - Base Saturation	%	** Calculation	<0.1	31	49	26	21	27
Potassium - Base Saturation	%	** Calculation	<0.1	12	6.8	2.0	18	15
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.9	1.6	0.9	0.7	1.9
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	< 0.1	< 0.1	0.4	0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	1.4	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.8	0.9	2.7	2.7	2.1
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	4.8	12.8	22.5	4.1	3.7
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.8	12.8	22.5	4.2	3.7
Colour Code	---	** Inhouse S84	---	5YR 4/6	5YR 5/6	7.5YR 5/4	5YR 3/4	5YR 4/6
Colour Description	---	** Inhouse S84	---	Yellowish Red	Yellowish Red	Brown	Dark Reddish Brown	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	---	10YR 5/6	5YR 2.5/1, 10YR 7/6	---	7.5YR 4/4
Munsell Mottle colour	---	** Inhouse S84	---	---	Yellowish Brown	Black, Yellow	---	Brown
Degree of Mottling	%	** Inhouse S84	---	---	10	1, 20	---	30

			Client Sample ID:	146	146	148	148	148
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0011	E25-00-8924-0012	E25-00-8924-0013	E25-00-8924-0014	E25-00-8924-0015
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	14.9	15.7	22.1	16.0	21.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	1.4	20.9	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	2.4	3.6	1.0
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.0	1.0	12.7	11.4	7.4
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	45.7	31.0	52.7	42.7	27.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.0	25.7	19.1	8.7	3.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	44.3	42.3	11.7	12.8	60.7
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.97	6.95	6.74	6.93	6.72
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.049	0.299	0.046	0.303	0.045
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.56	5.18	5.32	3.45	9.50
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2050	2320	2390	1550	4260
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	914	1040	1070	690	1900
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	4.73	6.70	1.58	1.11	8.89
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1290	1820	429	303	2420
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	575	814	192	135	1080
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.79	0.84	1.54	0.81	0.98

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	146	146	148	148	148
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0011	E25-00-8924-0012	E25-00-8924-0013	E25-00-8924-0014	E25-00-8924-0015
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	692	735	1350	709	855
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	309	328	602	317	382
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.56	1.85	< 0.065	0.09	0.41
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	286	951	< 33	45.1	209
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	128	424	< 15	20.1	93.2
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.9	1.6	1.2	1.2	1.9
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	43	36	63	63	48
Magnesium - Base Saturation	%	** Calculation	<0.1	44	46	19	20	45
Potassium - Base Saturation	%	** Calculation	<0.1	7.4	5.8	18	15	4.9
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	5.2	13	0.4	1.6	2.0
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.0	0.8	3.4	3.1	1.1
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	10.6	14.6	8.5	5.5	19.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	10.6	14.6	8.5	5.5	19.8
Colour Code	---	** Inhouse S84	---	5YR 5/8	5YR 4/6	7.5YR 3/4	5YR 4/6	5YR 5/3
Colour Description	---	** Inhouse S84	---	Yellowish Red	Yellowish Red	Dark Brown	Yellowish Red	Reddish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	---	10YR 5/6
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	---	Yellowish Brown
Degree of Mottling	%	** Inhouse S84	---	---	---	---	---	30

			Client Sample ID:	148	149	149	149	149
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0016	E25-00-8924-0017	E25-00-8924-0018	E25-00-8924-0019	E25-00-8924-0020
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	19.4	13.4	14.2	14.3	13.4
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.1	< 0.1	< 0.1	1.0
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	2.3	1.9	0.6	0.4
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.2	28.7	29.8	18.5	21.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.9	45.1	44.0	42.5	36.2

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			Client Sample ID:	148	149	149	149	149
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0016	E25-00-8924-0017	E25-00-8924-0018	E25-00-8924-0019	E25-00-8924-0020
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.5	11.8	11.8	3.0	11.0
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	51.9	11.1	12.6	35.5	30.3
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.33	5.98	6.57	7.04	7.61
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.019	0.023	0.019	0.028	0.039
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	6.71	2.31	3.50	6.83	6.79
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	3010	1040	1570	3070	3050
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1350	463	701	1370	1360
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	8.36	0.94	0.91	2.89	3.95
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	2280	255	248	786	1070
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	1020	114	111	351	480
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.63	0.69	0.43	0.41	0.34
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	553	603	378	361	301
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	247	269	169	161	135
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.58	< 0.065	< 0.065	0.08	0.08
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	300	< 33	< 33	38.8	42.4
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	134	< 15	< 15	17.3	18.9
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.16	0.02	0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.9	32	3.0	2.2	2.2
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.3	14	1.4	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.046	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	1.0	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	41	55	71	67	61
Magnesium - Base Saturation	%	** Calculation	<0.1	51	22	19	28	35
Potassium - Base Saturation	%	** Calculation	<0.1	3.9	16	8.8	4.0	3.1
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	3.6	0.8	0.9	0.7	0.7
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	3.9	0.3	0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	1.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.8	2.5	3.8	2.4	1.7
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	16.3	4.0	4.9	10.2	11.2
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	16.3	4.2	4.9	10.2	11.2
Colour Code	---	** Inhouse S84	---	7.5YR 5/8	5YR 3/4	5YR 4/4	5YR 5/6	5YR 5/6
Colour Description	---	** Inhouse S84	---	Strong Brown	Dark Reddish Brown	Reddish Brown	Yellowish Red	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 6/8, 10YR 3/1	---	---	---	5YR 4/2
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Brown, Very Dark Gray	---	---	---	Dark Reddish Gray
Degree of Mottling	%	** Inhouse S84	---	50, 2	---	---	---	5

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	150	150	150	150	151
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 05
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0021	E25-00-8924-0022	E25-00-8924-0023	E25-00-8924-0024	E25-00-8924-0025
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	15.1	13.7	14.3	12.7	22.6
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.3
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.3	0.2	< 0.1	0.1	0.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	19.9	16.2	13.7	22.6	4.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	47.2	41.1	37.6	41.8	32.8
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	19.7	15.1	11.5	7.2	16.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.8	27.4	37.2	28.3	45.0
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.41	6.74	6.83	6.97	6.79
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.021	0.015	0.017	0.019	0.069
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.54	4.90	6.19	5.28	7.61
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1590	2200	2780	2370	3420
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	709	981	1240	1060	1530
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.81	2.18	3.51	3.53	5.43
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	221	593	955	962	1480
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	98.6	265	426	429	660
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.68	0.30	0.32	0.30	1.32
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	594	262	279	265	1160
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	265	117	125	118	516
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.07	0.08	0.14
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	34.5	42.8	72.6
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	15.4	19.1	32.4
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.02	0.02	0.01	0.03
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.3	3.2	3.1	2.8	6.8
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.5	1.4	1.4	1.3	3.0
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.015	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	70	66	61	57	52
Magnesium - Base Saturation	%	** Calculation	<0.1	16	29	35	38	37
Potassium - Base Saturation	%	** Calculation	<0.1	13	4.0	3.2	3.3	9.1
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.3	0.5	0.7	0.9	1.0
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.2	0.2	0.2	0.2
Hydrogen - Base Saturation	%	** Calculation	<0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	4.4	2.2	1.8	1.5	1.4
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	5.0	7.4	10.1	9.2	14.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.1	7.4	10.1	9.2	14.5
Colour Code	---	** Inhouse S84	---	5YR 3/4	5YR 4/3	5YR 5/8	5YR 5/8	2.5YR 4/6
Colour Description	---	** Inhouse S84	---	Dark Reddish Brown	Reddish Brown	Yellowish Red	Yellowish Red	Red

Certificate of Analysis

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			Client Sample ID:	150	150	150	150	151
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 05
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0021	E25-00-8924-0022	E25-00-8924-0023	E25-00-8924-0024	E25-00-8924-0025
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle Colour	---	** Inhouse S84	---	---	5YR 5/8	10YR 5/8	10YR 5/8, 5YR 3/1	10YR 4/8, 7.5YR 3/4, 5YR 3/1
Munsell Mottle colour	---	** Inhouse S84	---	---	Yellowish Red	Yellowish Brown	Yellowish Brown, Very Dark Gray	Red, Dark Brown, Very Dark Gray
Degree of Mottling	%	** Inhouse S84	---	---	40	40	30, 2	5, 20, 2

			Client Sample ID:	151	151	152	152	152
			Sample Depth:	20 - 30	40 - 50	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0026	E25-00-8924-0027	E25-00-8924-0028	E25-00-8924-0029	E25-00-8924-0030
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	16.4	13.7	20.6	19.5	17.8
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	3.2	8.2	2.4	0.9
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.4	9.6	2.1	0.4	1.2
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.8	6.4	6.1	3.0	3.0
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.6	31.3	32.6	23.6	15.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.9	16.4	32.3	17.6	28.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	48.4	33.0	18.7	53.1	50.5
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.13	8.67	5.94	6.06	8.60
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.063	0.141	0.065	0.034	0.147
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	6.58	6.46	4.61	7.00	21.0
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2950	2900	2070	3140	9440
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1320	1300	924	1400	4220
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	6.38	7.26	1.59	3.95	5.55
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1740	1980	433	1080	1510
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	776	882	193	480	675
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.64	0.58	1.19	0.94	0.73
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	563	509	1040	821	643
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	251	227	465	366	287
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.27	0.65	< 0.065	0.09	0.20
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	141	334	< 33	48.3	104
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	63.1	149	< 15	21.6	46.5
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	0.02	0.04	0.09	0.02
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	5.9	4.9	8.4	18	4.5
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.7	2.2	3.7	8.2	2.0
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.052	0.020	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.2	< 1	< 1

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			Client Sample ID:	151	151	152	152	152
			Sample Depth:	20 - 30	40 - 50	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0026	E25-00-8924-0027	E25-00-8924-0028	E25-00-8924-0029	E25-00-8924-0030
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	47	43	61	58	76
Magnesium - Base Saturation	%	** Calculation	<0.1	46	48	21	33	20
Potassium - Base Saturation	%	** Calculation	<0.1	4.6	3.9	16	7.8	2.7
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	2.0	4.3	0.5	0.8	0.7
Aluminium - Base Saturation	%	** Calculation	<0.1	0.2	0.2	0.6	0.7	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.7	0.2	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.0	0.9	2.9	1.8	3.8
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	13.9	15.0	7.4	12.0	27.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	13.9	15.0	7.5	12.1	27.5
Colour Code	---	** Inhouse S84	---	5YR 5/8	7.5YR 4/3	5YR 3/4	5YR 5/8	7.5YR 5/4
Colour Description	---	** Inhouse S84	---	Yellowish Red	Brown	Dark Reddish Brown	Yellowish Red	Brown
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 4/6	2.5Y 6/4, 2.5YR 4/8, 5YR 4/4	---	---	2.5Y 6/8, 2.5Y 6/2, 2.5YR 4/6
Munsell Mottle colour	---	** Inhouse S84	---	Strong Brown	Light Yellowish Brown, Red, Reddish Brown	---	---	Olive Yellow, Light Brownish Gray, Red
Degree of Mottling	%	** Inhouse S84	---	30	10, 30, 20	---	---	15, 35, 2

			Client Sample ID:	153	153	153	153	154
			Sample Depth:	0 - 10	10 --20	30 - 40	60 - 70	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0031	E25-00-8924-0032	E25-00-8924-0033	E25-00-8924-0034	E25-00-8924-0035
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	17.1	12.1	17.5	14.3	22.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.4	11.8	< 0.1	1.8	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.8	12.2	0.6	7.5	1.4
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	19.7	18.5	11.0	36.0	31.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	37.1	33.2	38.0	18.6	41.5
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.4	13.4	5.2	7.9	19.4
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.7	10.8	45.2	28.2	6.5
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.24	6.38	7.25	7.18	5.53
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.046	0.027	0.069	0.093	0.039
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.50	2.32	5.23	4.02	2.14
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1570	1040	2350	1800	959
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	701	466	1050	805	428

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			Client Sample ID:	153	153	153	153	154
			Sample Depth:	0 - 10	10 --20	30 - 40	60 - 70	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0031	E25-00-8924-0032	E25-00-8924-0033	E25-00-8924-0034	E25-00-8924-0035
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.84	1.47	8.03	7.08	0.79
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	501	401	2190	1930	215
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	224	179	976	861	96.1
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	1.22	0.70	0.77	0.48	0.70
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	1070	612	673	425	612
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	476	273	300	190	273
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.48	0.64	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	247	327	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	110	146	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.05	0.05	0.02	0.01	0.39
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	9.9	10	3.0	2.4	79
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	4.4	4.5	1.4	1.1	35
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.053	0.015	< 0.01	< 0.01	0.11
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.2	< 1	< 1	< 1	2.5
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	1.1
Calcium - Base Saturation	%	** Calculation	<0.1	52	51	36	33	51
Magnesium - Base Saturation	%	** Calculation	<0.1	28	32	55	58	19
Potassium - Base Saturation	%	** Calculation	<0.1	18	15	5.3	4.0	17
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.5	0.7	3.3	5.2	1.0
Aluminium - Base Saturation	%	** Calculation	<0.1	0.7	1.1	0.1	< 0.1	9.4
Hydrogen - Base Saturation	%	** Calculation	<0.1	0.8	0.3	< 0.1	< 0.1	2.6
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.9	1.6	0.7	0.6	2.7
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	6.6	4.5	14.5	12.2	3.7
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	6.7	4.6	14.5	12.2	4.2
Colour Code	---	** Inhouse S84	---	7.5YR 3/3	7.5YR 4/4	2.5YR 5/8	2.5YR 7/4	7.5YR 3/3
Colour Description	---	** Inhouse S84	---	Dark Brown	Brown	Red	Pale Yellow	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	2.5Y 7/6, 5YR 3/1	5YR 5/8, 10YR 2/1	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	Yellow, Very Dark Gray	Yellowish Red, Black	---
Degree of Mottling	%	** Inhouse S84	---	---	---	15, 5	45, 2	---

			Client Sample ID:	154	154	154	155	155
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0036	E25-00-8924-0037	E25-00-8924-0038	E25-00-8924-0039	E25-00-8924-0040
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	12.0	14.7	13.6	24.2	12.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.4	1.2	5.4	1.6	4.9

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			Client Sample ID:	154	154	154	155	155
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	15 - 25
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0036	E25-00-8924-0037	E25-00-8924-0038	E25-00-8924-0039	E25-00-8924-0040
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	28.3	22.1	28.9	28.7	26.6
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	39.8	29.2	26.7	51.5	46.0
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.8	14.2	9.3	10.5	16.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.3	33.3	29.8	7.8	6.4
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.75	5.29	5.39	5.30	6.41
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.019	0.040	0.044	0.058	0.017
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	0.97	2.34	2.17	1.81	1.23
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	435	1050	972	811	553
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	194	468	434	362	247
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.58	5.12	5.62	0.85	0.90
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	157	1390	1530	232	246
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	69.9	622	683	104	110
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.69	0.54	0.39	0.53	0.34
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	603	472	338	466	293
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	269	211	151	208	131
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.10	0.15	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	50.3	78.7	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	22.4	35.2	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.63	0.81	0.61	0.54	0.09
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	130	160	120	110	18
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	56	73	55	49	8.1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.047	0.073	0.10	0.11	0.032
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.1	1.6	2.3	2.4	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.0	1.1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	33	26	24	46	47
Magnesium - Base Saturation	%	** Calculation	<0.1	20	57	62	22	34
Potassium - Base Saturation	%	** Calculation	<0.1	23	6.0	4.3	14	13
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.0	1.1	1.7	1.4	1.5
Aluminium - Base Saturation	%	** Calculation	<0.1	21	9.1	6.8	14	3.4
Hydrogen - Base Saturation	%	** Calculation	<0.1	1.6	0.8	1.2	2.7	1.2
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.7	0.5	0.4	2.1	1.4
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	2.3	8.1	8.3	3.2	2.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	2.9	9.0	9.0	3.9	2.6
Colour Code	---	** Inhouse S84	---	5YR 4/6	2.5YR 4/6	2.5YR 4/8	10YR 3/3	7.5YR 6/4
Colour Description	---	** Inhouse S84	---	Yellowish Red	Red	Red	Dark Brown	Light Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	2.5Y 7/6	10YR 7/1, 2.5Y 6/6	---	7.5YR 4/2
Munsell Mottle colour	---	** Inhouse S84	---	---	Yellow	Light Grey, Olive Yellow	---	Brown
Degree of Mottling	%	** Inhouse S84	---	---	10	10, 30	---	10

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			Client Sample ID:	155	155	156	156	156
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0041	E25-00-8924-0042	E25-00-8924-0043	E25-00-8924-0044	E25-00-8924-0045
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	15.8	14.5	24.0	19.0	20.2
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	10.4	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.0	2.0	0.5	1.5	< 0.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.0	9.5	1.6	2.4	1.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	27.9	28.2	22.8	33.4	19.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	15.6	18.8	39.9	44.8	23.3
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	44.7	41.5	24.8	18.0	56.1
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.55	6.01	6.24	6.94	7.69
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.125	0.274	0.081	0.150	1.15
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	1.73	1.02	5.35	3.71	7.55
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	777	459	2400	1670	3390
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	347	205	1070	744	1510
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	9.27	9.78	5.11	4.55	15.3
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	2520	2660	1390	1240	4170
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	1130	1190	621	553	1860
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.39	0.41	1.48	0.66	0.74
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	337	360	1290	580	651
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	151	161	577	259	291
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	1.08	1.72	0.32	0.63	3.83
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	557	884	163	323	1970
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	249	395	72.9	144	880
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.03	0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.4	6.0	2.7	1.5	1.8
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.5	2.7	1.2	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.035	0.035	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	14	7.9	44	39	28
Magnesium - Base Saturation	%	** Calculation	<0.1	74	75	42	48	56
Potassium - Base Saturation	%	** Calculation	<0.1	3.1	3.2	12	6.9	2.7
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	8.7	13	2.6	6.6	14
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	0.2	0.1	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	0.3	0.3	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.2	0.1	1.0	0.8	0.5
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	12.5	12.9	12.3	9.5	27.4
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	12.5	13.0	12.3	9.6	27.4
Colour Code	---	** Inhouse S84	---	2.5Y 5/4	10YR 6/6	7.5YR 3/1	7.5YR 7/1	10YR 5/8
Colour Description	---	** Inhouse S84	---	Light Olive Brown	Brownish Yellow	Very Dark Grey	Light Grey	Yellowish Brown

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			Client Sample ID:	155	155	156	156	156
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0041	E25-00-8924-0042	E25-00-8924-0043	E25-00-8924-0044	E25-00-8924-0045
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle Colour	---	** Inhouse S84	---	2.5YR 4/8, 5YR 2.5/2	2.5YR 4/8	7.5YR 7/1	10YR 3/2	2.5Y 7/2, 10YR 2/2
Munsell Mottle colour	---	** Inhouse S84	---	Red, Dark Reddish Brown	Red	Light Grey	Very Dark Greyish Brown	Pale Yellow, Very Dark Brown
Degree of Mottling	%	** Inhouse S84	---	20, 5	30	5	40	20, 5

			Client Sample ID:	156	158	158	158	158
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0046	E25-00-8924-0047	E25-00-8924-0048	E25-00-8924-0049	E25-00-8924-0050
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	20.4	18.1	18.1	18.1	17.0
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	1.6	0.4	0.1	3.2
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.5	9.8	8.0	7.1	5.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.9	53.4	56.0	35.2	42.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.0	30.1	7.6	18.0	20.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	56.1	5.0	28.0	39.6	28.2
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.04	5.54	6.25	7.05	8.65
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	1.69	0.048	0.058	0.030	0.104
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	7.87	3.23	6.49	9.44	22.6
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	3530	1450	2910	4240	10100
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1580	647	1300	1890	4530
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	17.6	1.10	1.97	2.94	3.09
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	4790	298	536	799	841
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	2140	133	239	357	375
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.76	0.99	1.25	0.73	0.42
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	664	868	1100	640	367
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	297	387	490	286	164
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	4.94	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	2550	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	1140	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.23	0.04	0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.5	47	7.2	2.8	2.4
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	21	3.2	1.3	1.1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.019	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1

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Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	156	158	158	158	158
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0046	E25-00-8924-0047	E25-00-8924-0048	E25-00-8924-0049	E25-00-8924-0050
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	25	58	66	72	86
Magnesium - Base Saturation	%	** Calculation	<0.1	56	20	20	22	12
Potassium - Base Saturation	%	** Calculation	<0.1	2.4	18	13	5.6	1.6
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	16	1.1	0.3	0.3	0.2
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	4.2	0.4	0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.4	2.9	3.3	3.2	7.3
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	31.2	5.4	9.7	13.1	26.1
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	31.2	5.6	9.8	13.2	26.2
Colour Code	---	** Inhouse S84	---	2.5Y 5/6	7.5YR 3/3	5YR 4/3	10YR 5/6	2.5Y 4/2
Colour Description	---	** Inhouse S84	---	Light Olive Brown	Dark brown	Reddish Brown	Yellowish Brown	Dark Greyish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 5/8, 7.5YR 2.5/1	---	2.5YR 5/6	5YR 5/4, 10YR 4/2	2.5Y 7/6, 7.5YR 5/8
Munsell Mottle colour	---	** Inhouse S84	---	Strong Brown, Black	---	Red	Reddish Brown, Dark Greyish Brown	Yellow, Strong Brown
Degree of Mottling	%	** Inhouse S84	---	5, 5	---	20	20, 5	40, 10

			Client Sample ID:	159	159	159	160	160
			Sample Depth:	0 - 10	20 - 30	40 - 50	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0051	E25-00-8924-0052	E25-00-8924-0053	E25-00-8924-0054	E25-00-8924-0055
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	22.0	11.9	15.6	16.3	11.9
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.5	4.8	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.1	3.9	1.0	3.0	1.3
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	52.4	54.8	47.1	26.9	21.6
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.6	17.2	14.9	28.4	30.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.9	10.9	14.3	25.6	31.5
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.5	8.4	22.8	16.1	14.9
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.07	6.75	6.51	6.33	7.08
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.054	0.018	0.019	0.038	0.021
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.85	3.14	2.58	2.81	2.54
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1730	1410	1160	1260	1140
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	772	629	517	563	509
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.18	1.25	2.44	0.78	0.94

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			Client Sample ID:	159	159	159	160	160
			Sample Depth:	0 - 10	20 - 30	40 - 50	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0051	E25-00-8924-0052	E25-00-8924-0053	E25-00-8924-0054	E25-00-8924-0055
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	320	340	665	211	256
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	143	152	297	94.4	114
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.75	0.32	0.23	0.94	0.27
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	653	282	204	824	238
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	292	126	91.0	368	106
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	< 0.065	0.15
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	< 33	75.8
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	< 15	33.8
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	< 0.01	0.02	0.04	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	6.1	1.8	3.8	8.2	1.6
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.7	< 1	1.7	3.6	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.057	< 0.01	< 0.01	0.018	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.3	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	66	66	49	61	65
Magnesium - Base Saturation	%	** Calculation	<0.1	20	26	46	17	24
Potassium - Base Saturation	%	** Calculation	<0.1	13	6.8	4.4	20	6.9
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.3	0.4	0.7	0.8	3.8
Aluminium - Base Saturation	%	** Calculation	<0.1	0.5	0.2	0.4	0.9	0.2
Hydrogen - Base Saturation	%	** Calculation	<0.1	1.0	< 0.1	< 0.1	0.4	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	3.3	2.5	1.1	3.6	2.7
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	5.8	4.7	5.3	4.6	3.9
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.9	4.7	5.3	4.6	3.9
Colour Code	---	** Inhouse S84	---	7.5YR 3/4	10YR 5/4	10YR 5/4	7.5YR 3/4	7.5YR 6/3
Colour Description	---	** Inhouse S84	---	Dark Brown	Yellowish Brown	Dark Yellowish Brown	Dark brown	Light Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	5YR 5/8, 7.5YR 3/1	2.5Y 6/6, 7.5YR 5/6	---	7.5YR 4/3
Munsell Mottle colour	---	** Inhouse S84	---	---	Strong Brown, Very Dark Brown	Olive Yellow, Strong Brown	---	Brown
Degree of Mottling	%	** Inhouse S84	---	---	10, 5	30, 10	---	50

			Client Sample ID:	160	160	161	161	161
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0056	E25-00-8924-0057	E25-00-8924-0058	E25-00-8924-0059	E25-00-8924-0060
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	13.6	13.0	19.6	12.1	15.4
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.4
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.8	3.0	4.2	3.7	2.5

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			Client Sample ID:	160	160	161	161	161
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0056	E25-00-8924-0057	E25-00-8924-0058	E25-00-8924-0059	E25-00-8924-0060
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.2	24.8	35.3	33.6	21.9
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.2	27.6	28.4	27.2	19.8
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	16.5	13.5	17.8	25.2	12.1
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	33.3	31.1	14.3	10.3	40.3
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.22	6.83	7.09	7.92	8.15
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.031	0.045	0.055	0.030	0.159
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.14	3.65	3.96	1.48	4.72
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1860	1640	1780	666	2120
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	831	731	794	298	945
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	2.60	3.54	2.64	1.17	5.33
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	708	963	720	320	1450
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	316	430	321	143	648
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.40	1.22	0.77	0.30	0.57
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	349	1070	679	258	502
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	156	477	303	115	224
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.20	0.16	0.33	0.40	1.30
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	101	84.5	170	208	668
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	45.1	37.7	76.0	92.8	298
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.7	2.0	< 1	< 1	1.1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	56	43	51	44	40
Magnesium - Base Saturation	%	** Calculation	<0.1	35	41	34	35	45
Potassium - Base Saturation	%	** Calculation	<0.1	5.4	14	10	8.8	4.8
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	2.7	1.9	4.3	12	11
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	0.1	< 0.1	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.6	1.0	1.5	1.3	0.9
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	7.3	8.6	7.7	3.4	11.9
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	7.4	8.6	7.7	3.4	11.9
Colour Code	---	** Inhouse S84	---	10YR 5/8	10YR 6/8	7.5YR 3/2	10YR 6/4	10YR 6/6
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Brownish Yellow	Dark Brown	Light Yellowish Brown	Brownish Yellow
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 6/3, 10YR 8/8	2.5YR 4/6, 2.5Y 6/3	---	7.5YR 5/3	10YR 4/1, 2.5Y 7/2
Munsell Mottle colour	---	** Inhouse S84	---	Pale Brown, Yellow	Red, Light Yellowish Brown	---	Brown	Dark Grey, Light Grey
Degree of Mottling	%	** Inhouse S84	---	50, 5	5, 20	---	30	10, 20

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			Client Sample ID:	161	162	162	162	162
			Sample Depth:	65 - 75	0 - 10	20 - 30	45 - 55	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0061	E25-00-8924-0062	E25-00-8924-0063	E25-00-8924-0064	E25-00-8924-0065
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	13.2	16.5	14.4	15.6	13.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.1	3.1	8.7	12.6	3.7
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.2	4.1	5.5	3.2	7.8
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	17.3	24.0	18.0	14.7	18.9
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	36.5	36.6	42.3	20.4	24.1
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	8.5	20.8	13.0	8.3	7.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	31.5	11.4	12.5	40.7	37.6
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.35	6.54	6.76	8.39	8.38
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.262	0.046	0.020	0.133	0.098
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.29	5.06	4.03	19.7	13.2
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1930	2270	1810	8830	5920
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	860	1010	807	3940	2640
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	6.04	1.16	0.75	1.50	1.47
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1640	316	204	408	399
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	734	141	91.0	182	178
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.53	1.02	0.56	0.46	0.48
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	463	897	490	405	424
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	207	401	219	181	189
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	1.52	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	783	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	350	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	< 1	< 1	< 1	< 1	< 1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	35	70	75	91	87
Magnesium - Base Saturation	%	** Calculation	<0.1	49	16	14	6.9	9.7
Potassium - Base Saturation	%	** Calculation	<0.1	4.3	14	10	2.1	3.2
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	12	0.4	0.3	0.2	0.3
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.7	4.4	5.4	13	9.0
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	12.4	7.3	5.4	21.7	15.2
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	12.4	7.3	5.4	21.7	15.2
Colour Code	---	** Inhouse S84	---	10YR 6/6	10YR 3/3	10YR 4/4	10YR 6/8	10YR 6/6
Colour Description	---	** Inhouse S84	---	Brownish Yellow	Dark Brown	Dark Yellowish Brown	Brownish Yellow	Brownish Yellow

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			Client Sample ID:	161	162	162	162	162
			Sample Depth:	65 - 75	0 - 10	20 - 30	45 - 55	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0061	E25-00-8924-0062	E25-00-8924-0063	E25-00-8924-0064	E25-00-8924-0065
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle Colour	---	** Inhouse S84	---	5YR 5/8, 10YR 7/2	---	5YR 4/4	2.5Y 7/1	2.5Y 7/2
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Red, Light Grey	---	Yellowish Red	Light Grey	Light Grey
Degree of Mottling	%	** Inhouse S84	---	20, 10	---	20	30	30

			Client Sample ID:	163	163	163	163	164
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0066	E25-00-8924-0067	E25-00-8924-0068	E25-00-8924-0069	E25-00-8924-0070
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	19.1	12.6	15.4	14.1	16.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.6	< 0.1	5.6	0.8
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.7	6.1	3.4	4.9	1.6
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	26.6	23.2	29.6	27.6	17.6
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	29.9	27.9	16.3	13.0	31.6
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.6	26.7	11.1	10.9	28.8
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.3	14.5	39.7	38.1	19.7
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.26	7.77	8.58	8.64	7.25
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.046	0.031	0.126	0.156	0.056
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.83	1.83	4.45	4.08	8.91
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2170	823	2000	1830	4000
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	968	368	891	817	1790
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.66	1.38	5.65	5.75	1.68
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	453	375	1540	1560	456
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	202	167	686	699	204
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.56	0.27	0.64	0.65	1.41
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	494	234	558	568	1230
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	221	105	249	254	550
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.13	0.24	1.54	1.46	0.08
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	64.6	124	794	752	38.8
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	28.8	55.4	355	336	17.3
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.8	< 1	1.3	1.4	1.5
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.020	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1

Certificate of Analysis

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			Client Sample ID:	163	163	163	163	164
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0066	E25-00-8924-0067	E25-00-8924-0068	E25-00-8924-0069	E25-00-8924-0070
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	67	49	36	34	74
Magnesium - Base Saturation	%	** Calculation	<0.1	23	37	46	48	14
Potassium - Base Saturation	%	** Calculation	<0.1	7.8	7.2	5.2	5.4	12
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.7	6.5	13	12	0.6
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	0.1	< 0.1	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.9	1.3	0.8	0.7	5.3
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	7.2	3.7	12.3	11.9	12.1
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	7.2	3.7	12.3	11.9	12.1
Colour Code	---	** Inhouse S84	---	10YR 3/2	5YR 6/4	10YR 5/8	10YR 5/8	7.5YR 2.5/2
Colour Description	---	** Inhouse S84	---	Very Dark Greyish Brown	Light Reddish Brown	Yellowish Brown	Yellowish Brown	Very Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 5/4	7.5YR 3/2, 10YR 7/3	5YR 3/2, 7.5YR 7/2, 10YR 6/1	7.5YR 4/2, 10YR 6/1	---
Munsell Mottle colour	---	** Inhouse S84	---	Yellowish Brown	Dark Brown, Very Pale Brown	Dark Reddish Brown, Pinkish Grey, Light Grey	Brown, Light Grey	---
Degree of Mottling	%	** Inhouse S84	---	15	2, 20	5, 20, 30	10, 40	---

			Client Sample ID:	164	164	164	165	165
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0071	E25-00-8924-0072	E25-00-8924-0073	E25-00-8924-0074	E25-00-8924-0075
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	13.7	13.9	11.6	14.9	10.7
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.1	7.8	2.4	< 0.1	0.8
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.9	3.4	5.4	4.6	4.7
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	20.3	23.7	39.4	37.4	41.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.5	17.2	18.1	33.0	25.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.8	15.9	7.2	15.8	16.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	24.4	31.9	27.6	9.3	11.2
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.86	8.63	8.76	5.45	6.94
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.027	0.114	0.113	0.043	0.020
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.41	9.98	7.80	2.17	2.19
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2430	4480	3500	975	983
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1090	2000	1560	435	439

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			Client Sample ID:	164	164	164	165	165
			Sample Depth:	15 - 25	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0071	E25-00-8924-0072	E25-00-8924-0073	E25-00-8924-0074	E25-00-8924-0075
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	0.89	2.20	2.58	0.94	0.67
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	243	599	702	255	182
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	108	267	313	114	81.4
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.61	0.64	0.50	0.52	0.36
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	537	562	440	457	313
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	240	251	196	204	140
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.17	0.38	0.34	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	89.7	195	175	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	40.1	87.2	78.1	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	< 0.01	0.40	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.4	1.6	1.2	81	1.3
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	< 1	36	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	< 0.01	0.027	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	76	76	69	53	67
Magnesium - Base Saturation	%	** Calculation	<0.1	13	17	23	23	21
Potassium - Base Saturation	%	** Calculation	<0.1	8.6	4.9	4.5	13	11
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	2.5	2.9	3.0	0.8	1.1
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	9.9	0.2
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	< 0.1	0.7	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	6.1	4.5	3.0	2.3	3.3
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	7.1	13.2	11.2	3.7	3.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	7.1	13.2	11.2	4.1	3.3
Colour Code	---	** Inhouse S84	---	5YR 5/2	10YR 5/4	10YR 6/6	7.5YR 3/3	10YR 5/4
Colour Description	---	** Inhouse S84	---	Reddish Grey	Yellowish Brown	Brownish Yellow	Dark Brown	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	10YR 5/3	7.5YR 5/8, 7.5YR 7/1	2.5Y 7/1, 2.5YR 4/8	---	---
Munsell Mottle colour	---	** Inhouse S84	---	Brown	Strong Brown, Light Grey	Light Grey, Red	---	---
Degree of Mottling	%	** Inhouse S84	---	40	20, 10	30, 30	---	---

			Client Sample ID:	165	165	166	166	166
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0076	E25-00-8924-0077	E25-00-8924-0078	E25-00-8924-0079	E25-00-8924-0080
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	11.9	15.5	16.5	15.7	16.2
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	0.8	8.3	11.9
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.6	0.1	6.1	5.8	6.5

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			Client Sample ID:	165	165	166	166	166
			Sample Depth:	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0076	E25-00-8924-0077	E25-00-8924-0078	E25-00-8924-0079	E25-00-8924-0080
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	33.5	3.3	21.9	10.7	11.9
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.1	13.4	12.7	13.3	8.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	11.8	34.7	26.9	12.5	9.7
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	29.1	48.5	31.6	49.3	51.2
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.37	8.65	6.22	6.98	7.71
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.061	0.136	0.032	0.035	0.062
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.79	5.63	5.27	5.48	5.30
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2600	2530	2370	2460	2380
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1160	1130	1060	1100	1060
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	2.45	9.07	2.28	6.09	8.72
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	666	2470	620	1660	2370
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	297	1100	277	740	1060
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.41	0.63	0.87	0.88	0.77
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	355	556	763	768	672
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	159	248	341	343	300
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.17	0.54	< 0.065	0.18	0.26
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	87.7	276	< 33	90.7	135
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	39.1	123	< 15	40.5	60.4
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	< 0.01	0.02	0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	< 1	< 1	3.3	2.1	2.2
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	1.5	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.047	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	1.0	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	66	35	62	43	35
Magnesium - Base Saturation	%	** Calculation	<0.1	28	57	27	48	58
Potassium - Base Saturation	%	** Calculation	<0.1	4.6	4.0	10	6.9	5.1
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.9	3.4	0.4	1.4	1.7
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.4	0.6	2.3	0.9	0.6
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	8.8	15.9	8.5	12.6	15.1
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	8.8	15.9	8.5	12.6	15.1
Colour Code	---	** Inhouse S84	---	10YR 5/6	2.5Y 5/6	7.5YR 2.5/2	5YR 5/8	5YR 5/8
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Light Olive Brown	Very Dark Brown	Yellowish Red	Yellowish Red
Munsell Mottle Colour	---	** Inhouse S84	---	5YR 2.5/2	7.5YR 5/8, 2.5Y 5/2	---	7.5YR 5/8, 7.5YR 2.5/2	10YR 5/8, 10YR 2/1
Munsell Mottle colour	---	** Inhouse S84	---	Dark Reddish Brown	Strong Brown, Greyish Brown	---	Strong Brown, Very Dark Brown	Yellowish Brown, Black
Degree of Mottling	%	** Inhouse S84	---	10	10, 10	---	30, 5	20, 5

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			Client Sample ID:	166	167	167	167	167
			Sample Depth:	65 - 75	0 - 10	10 - 20	30 - 40	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0081	E25-00-8924-0082	E25-00-8924-0083	E25-00-8924-0084	E25-00-8924-0085
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	15.5	14.0	12.6	19.0	17.8
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	5.4	< 0.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	7.1	3.0	0.9	0.2	< 0.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.4	14.8	16.6	10.5	1.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	10.2	39.5	31.2	3.8	6.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.9	16.2	23.4	14.8	32.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	54.0	26.5	27.9	70.7	59.5
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	8.36	6.25	6.44	7.28	8.01
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.180	0.029	0.029	0.034	0.071
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.73	3.37	3.54	8.69	9.33
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1670	1510	1590	3900	4190
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	747	675	710	1740	1870
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	13.2	0.93	1.41	5.45	7.09
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	3590	254	384	1480	1930
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	1600	114	172	662	862
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.70	0.70	0.66	1.00	0.91
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	616	614	576	876	800
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	275	274	257	391	357
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.80	< 0.065	< 0.065	< 0.065	0.12
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	411	< 33	< 33	< 33	60.9
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	183	< 15	< 15	< 15	27.2
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	< 0.01	0.03	0.02	0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	1.8	5.3	3.2	2.3	2.2
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	2.4	1.4	1.0	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.019	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	20	67	63	57	53
Magnesium - Base Saturation	%	** Calculation	<0.1	72	19	25	36	41
Potassium - Base Saturation	%	** Calculation	<0.1	3.8	14	12	6.6	5.2
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	4.3	< 0.1	< 0.1	0.4	0.7
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	0.5	0.3	< 0.1	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	0.4	0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.3	3.6	2.5	1.6	1.3
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	18.4	5.0	5.6	15.2	17.5
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	18.4	5.0	5.6	15.2	17.5
Colour Code	---	** Inhouse S84	---	10YR 5/8	7.5YR 3/4	7.5YR 4/6	5YR 5/8	10YR 5/8
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Dark Brown	Strong Brown	Yellowish Red	Yellowish Brown

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			Client Sample ID:	166	167	167	167	167
			Sample Depth:	65 - 75	0 - 10	10 - 20	30 - 40	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0081	E25-00-8924-0082	E25-00-8924-0083	E25-00-8924-0084	E25-00-8924-0085
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle Colour	---	** Inhouse S84	---	2.5YR 4/6, 2.5Y 7/4	---	---	7.5YR 4/2	5YR 5/6, 2.5Y 7/2, 7.5YR 3/2
Munsell Mottle colour	---	** Inhouse S84	---	Red, Pale Yellow	---	---	Brown	Yellowish Red, Light Grey, Dark brown
Degree of Mottling	%	** Inhouse S84	---	10, 10	---	---	10	20, 5, 20

			Client Sample ID:	168	168	168	168	169
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0086	E25-00-8924-0087	E25-00-8924-0088	E25-00-8924-0089	E25-00-8924-0090
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	16.9	11.1	16.7	14.0	11.6
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	1.3	< 0.1	< 0.1	35.6
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.2	3.7	0.4	< 0.1	6.6
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.3	27.8	17.3	20.3	10.7
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	31.3	27.3	14.5	22.5	15.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	18.0	18.3	9.5	12.3	13.3
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	22.2	21.7	58.4	44.9	18.4
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.23	6.74	7.92	8.38	5.98
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.040	0.012	0.043	0.054	0.026
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	3.61	2.58	9.67	7.51	1.43
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1620	1160	4340	3370	642
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	724	516	1940	1500	287
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.20	0.41	3.82	4.95	1.39
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	327	112	1040	1350	379
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	146	50.0	464	601	169
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.83	0.32	0.48	0.43	0.44
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	725	279	420	376	387
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	324	125	188	168	173
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	0.10	0.15	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	52.9	77.4	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	23.6	34.6	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	< 0.01	< 0.01	< 0.01	0.26
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	5.0	2.0	1.7	1.4	52
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.2	< 1	< 1	< 1	23
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.016	< 0.01	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1

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			Client Sample ID:	168	168	168	168	169
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0086	E25-00-8924-0087	E25-00-8924-0088	E25-00-8924-0089	E25-00-8924-0090
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	63	78	69	58	40
Magnesium - Base Saturation	%	** Calculation	<0.1	21	12	27	38	39
Potassium - Base Saturation	%	** Calculation	<0.1	15	9.6	3.4	3.3	12
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.1	< 0.1	0.7	1.2	1.5
Aluminium - Base Saturation	%	** Calculation	<0.1	0.4	0.3	< 0.1	< 0.1	7.3
Hydrogen - Base Saturation	%	** Calculation	<0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	3.0	6.3	2.5	1.5	1.0
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	5.7	3.3	14.1	13.0	3.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.7	3.3	14.1	13.0	3.6
Colour Code	---	** Inhouse S84	---	7.5YR 3/3	7.5YR 5/6	2.5YR 4/8	2.5YR 4/6	7.5YR 4/6
Colour Description	---	** Inhouse S84	---	Dark Brown	Strong Brown	Red	Red	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	7.5YR 3/2	10YR 5/6, 10YR 2/1	10YR 5/8, 2.5Y 7/2	---
Munsell Mottle colour	---	** Inhouse S84	---	---	Dark Brown	Yellowish Brown, Black	Yellowish brown, Light Grey	---
Degree of Mottling	%	** Inhouse S84	---	---	2	20, 5	40, 5	---

			Client Sample ID:	169	169	170	170	170
			Sample Depth:	20 - 30	40 - 50	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0091	E25-00-8924-0092	E25-00-8924-0093	E25-00-8924-0094	E25-00-8924-0095
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	19.8	17.3	17.8	12.5	15.1
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.6	1.1	< 0.1	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	2.0	0.3	1.8	4.6	2.4
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.2	7.4	24.0	22.8	15.6
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.2	15.4	33.9	37.3	20.4
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	8.5	12.5	20.9	19.9	17.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	73.6	63.3	19.4	15.4	44.0
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.14	7.71	6.34	6.88	7.24
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.079	0.416	0.047	0.019	0.041
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.65	3.68	4.69	2.93	6.13
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2090	1650	2100	1310	2750
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	933	737	939	587	1230
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	8.62	10.1	1.59	0.63	3.92
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	2350	2740	432	172	1070

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			Client Sample ID:	169	169	170	170	170
			Sample Depth:	20 - 30	40 - 50	0 - 10	20 - 30	40 - 50
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0091	E25-00-8924-0092	E25-00-8924-0093	E25-00-8924-0094	E25-00-8924-0095
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	1050	1220	193	76.9	476
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.83	0.75	0.81	0.47	0.57
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	728	661	709	415	502
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	325	295	317	185	224
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.90	2.42	< 0.065	< 0.065	0.08
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	465	1240	< 33	< 33	41.4
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	208	555	< 15	< 15	18.5
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.01	0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.2	2.1	2.8	1.5	1.7
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	< 1	< 1	1.3	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	< 0.01	0.022	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	31	22	66	72	57
Magnesium - Base Saturation	%	** Calculation	<0.1	57	59	22	16	37
Potassium - Base Saturation	%	** Calculation	<0.1	5.5	4.5	11	12	5.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	6.0	14	0.3	0.2	0.8
Aluminium - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.2	0.2	< 0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.5	0.4	2.9	4.6	1.6
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	15.0	16.9	7.1	4.0	10.7
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	15.0	16.9	7.1	4.0	10.7
Colour Code	---	** Inhouse S84	---	2.5YR 4/4	10YR 5/6	7.5YR 3/3	5YR 4/6	2.5YR 4/8
Colour Description	---	** Inhouse S84	---	Red	Yellowish Brown	Dark Brown	Yellowish Red	Red
Munsell Mottle Colour	---	** Inhouse S84	---	7.5YR 3/4	5YR 5/8, 7.5YR 3/1	---	---	10YR 6/6, 10YR 4/3
Munsell Mottle colour	---	** Inhouse S84	---	Dark Brown	Yellowish Red, Very Dark Grey	---	---	Brownish Yellow, Brown
Degree of Mottling	%	** Inhouse S84	---	20	40, 2	---	---	30, 10

			Client Sample ID:	170	171	171	171	171
			Sample Depth:	60 - 70	0 - 10	20 - 30	40 - 50	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0096	E25-00-8924-0097	E25-00-8924-0098	E25-00-8924-0099	E25-00-8924-0100
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	13.0	19.0	13.1	15.9	16.4
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	4.0	15.0	< 0.1	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	8.8	12.9	0.3	0.4
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.5	10.8	11.5	2.7	5.5

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			Client Sample ID:	170	171	171	171	171
			Sample Depth:	60 - 70	0 - 10	20 - 30	40 - 50	60 - 70
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0096	E25-00-8924-0097	E25-00-8924-0098	E25-00-8924-0099	E25-00-8924-0100
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	29.0	45.3	39.8	44.9	44.8
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	13.5	14.2	7.7	11.8	15.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	34.0	16.9	13.1	40.3	33.7
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.27	6.14	6.50	5.90	6.13
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.040	0.042	0.019	0.018	0.021
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	4.93	4.35	3.30	1.89	2.29
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2210	1950	1480	851	1030
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	987	873	661	380	459
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	4.19	2.26	3.48	9.80	11.6
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1140	617	947	2670	3170
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	509	275	423	1190	1420
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.44	0.91	0.57	0.36	0.32
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	388	795	499	315	279
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	173	355	223	141	125
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.10	< 0.065	< 0.065	0.18	0.31
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	49.9	< 33	< 33	93.0	162
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	22.3	< 15	< 15	41.5	72.3
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	0.03	0.02	1.9	0.95
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	5.6	6.4	4.3	390	190
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.5	2.9	1.9	170	85
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.015	< 0.01	< 0.01	0.20
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	4.5
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	2.0
Calcium - Base Saturation	%	** Calculation	<0.1	51	57	45	13	15
Magnesium - Base Saturation	%	** Calculation	<0.1	43	30	47	69	74
Potassium - Base Saturation	%	** Calculation	<0.1	4.6	12	7.7	2.5	2.0
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.0	0.3	0.1	1.3	2.0
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.4	0.3	14	6.0
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	0.2	< 0.1	< 0.1	1.3
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.2	1.9	0.9	0.2	0.2
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	9.7	7.6	7.4	12.2	14.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	9.7	7.6	7.4	14.1	15.7
Colour Code	---	** Inhouse S84	---	2.5YR 4/6	7.5YR 3/4	7.5YR 5/6	2.5YR 4/6	10YR 5/8
Colour Description	---	** Inhouse S84	---	Red	Dark Brown	Strong Brown	Red	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	2.5Y 6/4	---	---	2.5Y 7/4, 10YR 6/6	2.5Y 7/1, 2.5YR 5/8
Munsell Mottle colour	---	** Inhouse S84	---	Light Yellowish Brown	---	---	Pale Yellow, Brownish Yellow	Light Grey, Red
Degree of Mottling	%	** Inhouse S84	---	30	---	---	5, 40	20, 20

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			Client Sample ID:	172	172	172	172	173
			Sample Depth:	0 - 10	10 - 20	30 - 40	50 - 60	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0101	E25-00-8924-0102	E25-00-8924-0103	E25-00-8924-0104	E25-00-8924-0105
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	18.1	10.3	18.1	11.2	19.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.0	32.0	< 0.1	3.6	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	6.6	12.2	1.7	1.4	1.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	23.7	15.3	6.5	3.0	18.8
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	28.7	16.8	12.4	7.8	32.2
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	17.9	11.2	13.2	29.7	32.2
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	19.0	12.5	66.2	54.5	15.7
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.83	6.58	6.72	7.66	6.39
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.033	0.022	0.118	0.276	0.056
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.90	1.61	3.30	2.41	3.42
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1300	723	1480	1080	1530
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	581	323	661	483	685
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.58	1.17	7.99	8.09	1.43
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	431	318	2170	2200	389
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	193	142	970	983	174
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.57	0.28	0.58	0.42	1.92
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	499	244	507	365	1680
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	223	109	226	163	750
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.10	1.25	1.93	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	51.8	645	994	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	23.1	288	444	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.19	0.01	0.01	< 0.01	< 0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	38	2.5	2.4	< 1	1.8
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	17	1.1	1.1	< 1	< 1
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.11	< 0.01	< 0.01	< 0.01	0.088
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.4	< 1	< 1	< 1	2.0
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	54	51	25	19	50
Magnesium - Base Saturation	%	** Calculation	<0.1	29	37	61	63	21
Potassium - Base Saturation	%	** Calculation	<0.1	11	8.8	4.4	3.2	28
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.8	3.2	9.5	15	0.2
Aluminium - Base Saturation	%	** Calculation	<0.1	3.5	0.4	< 0.1	< 0.1	0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	2.0	< 0.1	< 0.1	< 0.1	1.3
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.8	1.4	0.4	0.3	2.4
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	5.1	3.2	13.1	12.8	6.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	5.4	3.2	13.1	12.8	6.9
Colour Code	---	** Inhouse S84	---	10YR 3/4	10YR 4/4	5YR 5/8	10YR 6/6	10YR 3/3
Colour Description	---	** Inhouse S84	---	Dark Yellowish Brown	Dark Yellowish Brown	Yellowish Red	Brownish Yellow	Dark Brown

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			Client Sample ID:	172	172	172	172	173
			Sample Depth:	0 - 10	10 - 20	30 - 40	50 - 60	0 - 10
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0101	E25-00-8924-0102	E25-00-8924-0103	E25-00-8924-0104	E25-00-8924-0105
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	10YR 6/6, 7.5YR 4/2 Brownish Yellow, Brown	10YR 8/4, 10YR 6/3 Very Pale Brown, Pale Brown	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---			---
Degree of Mottling	%	** Inhouse S84	---	---	---	30, 10	50, 10	---

			Client Sample ID:	173	173	173	174	174
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0106	E25-00-8924-0107	E25-00-8924-0108	E25-00-8924-0109	E25-00-8924-0110
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	14.1	12.8	11.5	13.9	16.3
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	< 0.1	11.1	15.8	1.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	4.1	3.8	9.7	9.6	0.9
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	21.9	25.2	34.9	21.2	13.1
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	34.4	29.2	19.0	28.3	21.1
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	25.1	12.6	3.7	12.7	8.6
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.6	29.2	21.6	12.4	55.2
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	6.41	5.71	5.94	5.74	5.54
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.017	0.019	0.019	0.036	0.051
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.55	2.39	2.17	1.34	4.67
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1150	1070	975	599	2100
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	512	478	435	268	936
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.07	4.43	4.60	0.94	5.55
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	292	1210	1250	257	1510
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	130	538	559	115	674
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.49	0.28	0.27	0.61	0.63
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	431	246	237	534	553
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	192	110	106	238	247
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	0.07	0.08	< 0.065	0.07
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	35.8	42.5	< 33	35.3
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	16.0	19.0	< 15	15.8
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.02	0.37	0.19	0.32	0.68
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	3.2	74	38	64	140
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.4	33	17	29	61
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.067	0.11	0.087	0.084	0.094
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.5	2.4	1.9	1.9	2.1

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			Client Sample ID:	173	173	173	174	174
			Sample Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0106	E25-00-8924-0107	E25-00-8924-0108	E25-00-8924-0109	E25-00-8924-0110
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	1.1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	61	31	29	41	40
Magnesium - Base Saturation	%	** Calculation	<0.1	25	58	62	29	47
Potassium - Base Saturation	%	** Calculation	<0.1	12	3.7	3.7	19	5.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.4	0.9	1.1	< 0.1	0.6
Aluminium - Base Saturation	%	** Calculation	<0.1	0.4	4.8	2.5	9.7	5.8
Hydrogen - Base Saturation	%	** Calculation	<0.1	1.6	1.4	1.2	2.5	0.8
Calcium/Magnesium Ratio	---	** Calculation	<0.1	2.4	0.5	0.5	1.4	0.8
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	4.1	7.2	7.1	2.9	10.9
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	4.2	7.6	7.4	3.3	11.7
Colour Code	---	** Inhouse S84	---	7.5YR 5/4	5YR 5/8	7.5YR 5/8	7.5YR 3/4	2.5YR 4/6
Colour Description	---	** Inhouse S84	---	Brown	Yellowish Red	Strong Brown	Dark Brown	Red
Munsell Mottle Colour	---	** Inhouse S84	---	---	10YR 6/6, 2.5Y 8/2	2.5Y 7/4, 7.5YR 4/2	---	5YR 4/4
Munsell Mottle colour	---	** Inhouse S84	---	---	Brownish Yellow, Pale Yellow	Pale Yellow, Brown	---	Reddish Brown
Degree of Mottling	%	** Inhouse S84	---	---	30, 5	30, 10	---	30

			Client Sample ID:	174	174	175	175	175
			Sample Depth:	40 - 50	65 - 75	0 - 10	25 - 35	50 - 60
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0111	E25-00-8924-0112	E25-00-8924-0113	E25-00-8924-0114	E25-00-8924-0115
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	16.5	15.3	15.0	13.5	15.7
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	9.2	3.5	2.6	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	1.6	3.0	2.8	3.0	1.0
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	16.5	14.6	28.2	27.3	18.2
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	24.2	24.5	35.8	41.3	33.8
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	9.6	9.9	15.2	12.6	8.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	48.1	38.8	14.6	13.2	38.0
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.60	7.14	5.80	6.23	7.18
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.033	0.048	0.036	0.019	0.030
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	2.75	2.80	1.90	2.15	6.67
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	1240	1260	851	967	3000
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	552	561	380	432	1340
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	6.61	7.64	0.79	0.71	3.38
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1800	2080	214	194	919

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			Client Sample ID:	174	174	175	175	175
			Sample Depth:	40 - 50	65 - 75	0 - 10	25 - 35	50 - 60
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0111	E25-00-8924-0112	E25-00-8924-0113	E25-00-8924-0114	E25-00-8924-0115
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	803	928	95.6	86.6	410
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.38	0.35	0.93	0.40	0.47
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	335	308	817	350	411
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	150	137	365	156	183
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.16	0.37	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	80.9	188	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	36.1	84.0	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.99	0.02	0.28	0.04	0.02
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	200	3.8	57	8.3	3.1
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	89	1.7	25	3.7	1.4
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.13	< 0.01	0.029	0.033	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	2.8	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	1.3	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	25	25	48	64	63
Magnesium - Base Saturation	%	** Calculation	<0.1	60	68	20	21	32
Potassium - Base Saturation	%	** Calculation	<0.1	3.5	3.1	24	12	4.4
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	1.4	3.3	0.3	0.4	0.5
Aluminium - Base Saturation	%	** Calculation	<0.1	9.0	0.2	7.2	1.2	0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	1.1	< 0.1	0.7	1.0	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	0.4	0.4	2.4	3.0	2.0
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	9.9	11.2	3.6	3.3	10.6
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	11.0	11.2	3.9	3.4	10.6
Colour Code	---	** Inhouse S84	---	10YR 6/8	10YR 5/8	10YR 3/3	10YR 5/4	10YR 5/4
Colour Description	---	** Inhouse S84	---	Brownish Yellow	Brownish Yellow	Dark Brown	Yellowish Brown	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	2.5YR 4/6, 7.5YR 3/2	2.5YR 3/6, 5Y 7/1, 2.5Y 8/4	---	---	2.5YR 4/6
Munsell Mottle colour	---	** Inhouse S84	---	Red, Dark Brown	Dark Red, Light Grey, Pale Yellow	---	---	Red
Degree of Mottling	%	** Inhouse S84	---	40, 10	5, 15, 20	---	---	40

			Client Sample ID:	175	176	176	176	176
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0116	E25-00-8924-0117	E25-00-8924-0118	E25-00-8924-0119	E25-00-8924-0120
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	15.3	18.4	18.6	15.5	16.0
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	< 0.1	12.6	2.1	0.8	< 0.1
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.7	9.6	1.0	4.3	0.5
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	17.2	29.3	22.5	23.1	12.5

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			Client Sample ID:	175	176	176	176	176
			Sample Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0116	E25-00-8924-0117	E25-00-8924-0118	E25-00-8924-0119	E25-00-8924-0120
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---	---
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	30.9	31.5	15.6	20.5	38.7
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	14.0	4.0	9.5	8.9	5.9
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	37.2	13.1	49.3	42.5	42.5
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	7.68	5.56	6.58	8.22	8.70
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.038	0.042	0.045	0.082	0.140
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	5.84	2.76	5.53	4.01	3.54
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2620	1240	2480	1800	1590
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1170	553	1110	804	709
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	3.83	1.47	6.50	7.97	8.61
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	1040	399	1770	2170	2340
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	466	178	790	969	1050
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.51	0.63	1.49	1.19	1.11
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	445	549	1300	1040	970
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	198	245	581	466	433
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	0.09	< 0.065	0.08	0.28	0.57
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	47.0	< 33	39.8	143	292
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	21.0	< 15	17.8	63.8	130
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.01	0.34	0.03	0.02	0.02
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	2.4	68	5.6	3.9	3.2
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	1.1	30	2.5	1.7	1.4
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	< 0.01	0.036	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	57	53	41	30	26
Magnesium - Base Saturation	%	** Calculation	<0.1	37	28	48	59	62
Potassium - Base Saturation	%	** Calculation	<0.1	4.9	12	11	8.9	8.0
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.9	0.2	0.6	2.1	4.1
Aluminium - Base Saturation	%	** Calculation	<0.1	0.1	6.4	0.2	0.1	0.1
Hydrogen - Base Saturation	%	** Calculation	<0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	1.5	1.9	0.9	0.5	0.4
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	10.3	4.9	13.6	13.5	13.8
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	10.3	5.2	13.6	13.5	13.8
Colour Code	---	** Inhouse S84	---	10YR 5/4	7.5YR 3/2	2.5YR 5/8	10YR 5/4	10YR 5/6
Colour Description	---	** Inhouse S84	---	Yellowish Brown	Dark Brown	Red	Yellowish Brown	Yellowish Brown
Munsell Mottle Colour	---	** Inhouse S84	---	2.5YR 3/6	5YR 5/6	7.5YR 3/2	2.5YR 4/8, 10YR 2/1	7.5YR 5/6, 7.5YR 3/2
Munsell Mottle colour	---	** Inhouse S84	---	Dark Red	Yellowish Red	Dark Brown	Red, Black	Strong Brown, Very Dark Brown
Degree of Mottling	%	** Inhouse S84	---	40	2	30	30, 5	40, 5

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	177	177	177	177
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0121	E25-00-8924-0122	E25-00-8924-0123	E25-00-8924-0124
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---
Moisture Content	%	Inhouse S2 (105)	<0.1	21.8	12.3	11.5	10.5
Gravel > 4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	0.5	< 0.1	0.9	5.5
Gravel 2.00–4.75 mm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	3.2	4.2	3.3	4.1
Coarse Sand 200–2000 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	43.8	44.6	35.8	35.0
Fine Sand 20–200 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	27.7	19.4	26.3	25.3
Silt 2–20 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.7	17.4	12.9	10.5
Clay < 2 µm fraction	% of total oven-dry equivalent	** Inhouse S30	<0.1	12.1	14.4	20.8	19.6
pH (H2O)	units	Rayment & Lyons 2011 - 4A1	---	5.82	6.59	7.13	7.58
Electrical Conductivity	dS/m	Rayment & Lyons 2011 - 3A1	<0.005	0.086	0.023	0.027	0.029
Calcium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.05	6.62	5.50	5.98	3.92
Calcium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<22	2970	2470	2680	1760
Calcium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<10	1330	1100	1200	785
Magnesium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.01	1.85	0.90	2.04	2.83
Magnesium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<2	504	245	555	772
Magnesium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<1	225	110	248	344
Potassium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.12	0.65	0.62	0.60	0.46
Potassium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<112	571	539	525	404
Potassium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<50	255	241	234	180
Sodium - Exchangeable	cmol+/kg	Rayment & Lyons 2011 - 15D3	<0.065	< 0.065	< 0.065	< 0.065	< 0.065
Sodium - Exchangeable	kg/ha	Rayment & Lyons 2011 - 15D3	<33	< 33	< 33	< 33	< 33
Sodium - Exchangeable	mg/kg	Rayment & Lyons 2011 - 15D3	<15	< 15	< 15	< 15	< 15
Aluminium - Exchangeable	cmol+/kg	** Inhouse S37	<0.01	0.03	< 0.01	< 0.01	0.01
Aluminium - Exchangeable	kg/ha	** Inhouse S37	<1	5.3	1.9	1.4	2.6
Aluminium - Exchangeable	mg/kg	** Inhouse S37	<1	2.4	< 1	< 1	1.2
Hydrogen - Exchangeable	cmol+/kg	** Rayment & Lyons 2011 - 15G1	<0.01	0.081	< 0.01	< 0.01	< 0.01
Hydrogen - Exchangeable	kg/ha	** Rayment & Lyons 2011 - 15G1	<1	1.8	< 1	< 1	< 1
Hydrogen - Exchangeable	mg/kg	** Rayment & Lyons 2011 - 15G1	<1	< 1	< 1	< 1	< 1
Calcium - Base Saturation	%	** Calculation	<0.1	72	78	69	54
Magnesium - Base Saturation	%	** Calculation	<0.1	20	13	24	39
Potassium - Base Saturation	%	** Calculation	<0.1	7.0	8.7	6.9	6.3
Sodium - Base Saturation (ESP)	%	** Calculation	<0.1	0.2	0.3	0.2	0.8
Aluminium - Base Saturation	%	** Calculation	<0.1	0.3	0.1	< 0.1	0.2
Hydrogen - Base Saturation	%	** Calculation	<0.1	0.9	< 0.1	< 0.1	< 0.1
Calcium/Magnesium Ratio	---	** Calculation	<0.1	3.6	6.1	2.9	1.4
Cation Exchange Capacity (Ca, Mg, K, Na)	cmol+/kg	** Calculation	---	9.1	7.0	8.6	7.3
Effective Cation Exchange Capacity	cmol+/kg	** Calculation	---	9.2	7.1	8.6	7.3
Colour Code	---	** Inhouse S84	---	10YR 2/2	10YR 2/2	10YR 3/3	7.5YR 3/3
Colour Description	---	** Inhouse S84	---	Very Dark Brown	Very Dark Brown	Dark Brown	Dark Brown
Munsell Mottle Colour	---	** Inhouse S84	---	---	---	---	5YR 5/2

Certificate of Analysis

Request ID: EAL/E25-00-8924 Report ID: E25-00-8924_EALP1_1 Issue date: 19 September 2025

			Client Sample ID:	177	177	177	177
			Sample Depth:	0 - 10	20 - 30	40 - 50	65 - 75
			Sample Date:	6 August 2025	6 August 2025	6 August 2025	6 August 2025
			Sampled By:	M.Hemingway	M.Hemingway	M.Hemingway	M.Hemingway
			Your Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			EAL Sample ID:	E25-00-8924-0121	E25-00-8924-0122	E25-00-8924-0123	E25-00-8924-0124
Parameter	**Unit**	**Method Reference**	**LOR**	---	---	---	---
Munsell Mottle colour	---	** Inhouse S84	---	---	---	---	Reddish Grey
Degree of Mottling	%	** Inhouse S84	---	---	---	---	2

Notes:

- Conversions to kg/ha = mg/kg x 2.24.
- Soluble salts are included in exchangeable cation results. No pre-wash is carried out unless specifically requested.
- The chloride estimate result (Electrical Conductivity x 640) is considered an estimate, and is generally an over-estimate.
- Total Acid Extractable Nutrients indicate a store of nutrients.
- ** denotes NATA accreditation does not cover the performance of this service.
- .. denotes not requested, no data/information or no guidelines available.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (available on request or at scu.edu.au/eal).
- Analysis conducted between sample arrival date and reporting date.
- This report is not to be reproduced except in full.
- Results only relate to the item tested.
- Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
- Guidelines for phosphorus have been reduced for Australian soils.
- National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
- Methods from Rayment and Lyons, 2011. Soil Chemical Methods - Australasia. CSIRO Publishing, Collingwood.
- The Morgan 1 Extract is adapted from 'Science in Agriculture', 'Non-Toxic Farming', and 'LaMotte Soil Handbook'.
- All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
- DOC analysis is carried out on samples as they are supplied, with results corrected to 105°C oven dried basis.
- Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm.
- ppm = mg/kg dried sample

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

317 soil samples supplied by Minesoils Pty Ltd on 12th December, 2022 - Lab Job No. N5559.
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 2 BSAL.
Address Not Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
35 0 - 10	N5559/1	27.6%	4.7%	1.2%	3.6%	12.3%	24.2%	31.0%	27.8%
35 20 - 30	N5559/2	13.2%	9.5%	5.0%	4.4%	7.0%	26.6%	34.1%	22.8%
35 40 - 50	N5559/3	17.4%	14.0%	11.3%	2.8%	3.4%	15.0%	21.6%	45.9%
35 65 - 75	N5559/4	20.4%	0.0%	0.0%	0.0%	0.9%	9.1%	27.3%	62.7%
36 0 - 10	N5559/5	13.6%	15.5%	11.1%	4.5%	13.6%	35.5%	14.8%	20.6%
36 10 - 20	N5559/6	9.4%	8.6%	3.2%	5.4%	20.1%	30.7%	19.5%	21.1%
36 30 - 40	N5559/7	16.8%	0.0%	0.0%	0.0%	2.1%	23.0%	14.6%	60.3%
36 45 - 55	N5559/8	15.6%	0.3%	0.0%	0.3%	3.1%	31.6%	14.0%	51.0%
37 0 - 10	N5559/9	12.1%	4.1%	1.1%	3.0%	36.9%	31.5%	15.4%	12.1%
37 20 - 30	N5559/10	9.5%	4.0%	1.2%	2.8%	33.3%	32.2%	17.7%	12.9%
37 40 - 50	N5559/11	9.4%	5.5%	1.3%	4.2%	36.8%	26.3%	18.0%	13.5%
37 65 - 75	N5559/12	13.1%	2.6%	0.0%	2.6%	33.9%	20.1%	9.7%	33.7%
38 0 - 10	N5559/13	14.7%	0.0%	0.0%	0.0%	5.1%	28.7%	39.6%	26.6%
38 20 - 30	N5559/14	18.0%	0.0%	0.0%	0.0%	0.5%	11.8%	30.2%	57.5%
38 40 - 50	N5559/15	16.0%	0.0%	0.0%	0.0%	0.5%	12.9%	32.2%	54.5%
38 65 - 75	N5559/16	17.8%	0.0%	0.0%	0.0%	1.7%	16.0%	40.2%	42.1%
39 0 - 10	N5559/17	16.3%	9.2%	4.9%	4.3%	20.1%	40.1%	13.8%	16.7%
39 20 - 30	N5559/18	14.6%	2.7%	1.3%	1.4%	10.8%	21.0%	23.3%	42.3%
39 40 - 50	N5559/19	15.6%	1.1%	0.8%	0.3%	1.6%	12.3%	27.4%	57.6%
39 55 - 65	N5559/20	14.9%	5.3%	4.5%	0.8%	1.1%	9.6%	31.8%	52.3%
40 0 - 10	N5559/21	12.8%	5.3%	2.9%	2.4%	20.8%	39.4%	18.6%	15.9%
40 10 - 20	N5559/22	6.4%	31.5%	25.4%	6.1%	13.4%	16.6%	22.1%	16.5%
40 30 - 40	N5559/23	16.2%	0.0%	0.0%	0.0%	2.7%	16.5%	27.1%	53.7%
40 45 - 55	N5559/24	17.7%	0.3%	0.0%	0.3%	0.7%	11.0%	29.0%	58.9%
41 0 - 10	N5559/25	8.1%	14.9%	8.1%	6.8%	21.2%	36.8%	13.8%	13.3%
41 20 - 30	N5559/26	15.4%	0.3%	0.0%	0.3%	6.7%	23.1%	13.6%	56.3%
41 40 - 50	N5559/27	15.2%	0.1%	0.0%	0.1%	3.2%	26.0%	18.2%	52.5%
42 0 - 10	N5559/28	18.5%	1.8%	0.0%	1.8%	27.1%	40.7%	15.5%	14.9%
42 10 - 20	N5559/29	5.8%	26.2%	15.3%	10.8%	19.0%	29.7%	15.8%	9.3%
42 30 - 40	N5559/30	15.3%	5.4%	0.0%	5.4%	12.1%	19.3%	15.0%	48.2%
42 65 - 75	N5559/31	16.9%	2.6%	1.5%	1.1%	1.8%	23.2%	27.5%	44.9%
43 0 - 10	N5559/32	14.9%	6.5%	3.9%	2.6%	18.6%	47.9%	18.1%	8.9%
43 10 - 20	N5559/33	8.3%	16.4%	12.4%	4.0%	11.6%	49.3%	12.1%	10.6%
43 20 - 30	N5559/34	14.9%	0.0%	0.0%	0.0%	1.7%	24.1%	27.4%	46.8%
43 40 - 50	N5559/35	15.0%	0.0%	0.0%	0.0%	1.8%	29.9%	27.5%	40.7%
44 0 - 10	N5559/36	9.9%	4.5%	0.9%	3.6%	41.4%	30.8%	13.7%	9.6%
44 20 - 30	N5559/37	11.2%	20.2%	10.1%	10.0%	18.5%	15.8%	12.6%	32.9%
44 40 - 50	N5559/38	12.1%	2.6%	0.5%	2.1%	22.4%	27.8%	10.9%	36.3%
44 65 - 75	N5559/39	12.7%	0.4%	0.0%	0.4%	24.2%	30.8%	13.7%	30.9%
45 0 - 10	N5559/40	8.4%	4.2%	0.3%	3.9%	37.9%	33.8%	14.4%	9.7%
45 25 - 35	N5559/41	6.8%	5.4%	1.3%	4.1%	31.6%	45.0%	12.1%	5.9%
45 45 - 55	N5559/42	15.3%	1.0%	0.0%	1.0%	19.8%	26.5%	7.0%	45.7%
45 65 - 75	N5559/43	15.4%	0.1%	0.0%	0.1%	11.7%	45.0%	7.8%	35.2%
46 0 - 10	N5559/44	11.5%	5.1%	1.0%	4.1%	15.1%	41.9%	23.2%	14.8%
46 20 - 30	N5559/45	11.7%	2.8%	1.7%	1.1%	11.6%	33.0%	16.7%	35.9%
46 40 - 50	N5559/46	15.7%	0.6%	0.0%	0.6%	8.4%	30.4%	14.7%	45.9%
46 65 - 75	N5559/47	15.9%	2.3%	0.8%	1.5%	5.9%	28.7%	12.4%	50.7%
47 0 - 10	N5559/48	27.8%	6.1%	0.5%	5.6%	32.4%	29.6%	19.3%	12.6%
47 20 - 30	N5559/49	11.5%	7.8%	2.8%	4.9%	27.9%	37.2%	16.2%	10.9%
47 40 - 50	N5559/50	17.6%	0.3%	0.0%	0.3%	11.2%	36.1%	11.1%	41.4%
47 65 - 75	N5559/51	15.5%	0.0%	0.0%	0.0%	11.6%	42.2%	9.9%	36.4%
48 0 - 10	N5559/52	24.7%	0.9%	0.0%	0.9%	26.5%	44.2%	17.2%	11.2%
48 15 - 25	N5559/53	6.5%	0.9%	0.0%	0.9%	25.8%	46.7%	16.3%	10.4%
48 30 - 40	N5559/54	11.7%	7.3%	5.7%	1.6%	16.5%	26.5%	11.7%	38.0%
48 65 - 75	N5559/55	11.1%	5.3%	0.0%	5.3%	21.4%	39.2%	8.1%	25.9%
49 0 - 10	N5559/56	3.8%	32.2%	20.4%	11.8%	22.9%	26.2%	8.2%	10.4%
49 10 - 20	N5559/57	4.4%	9.1%	1.5%	7.6%	31.4%	28.3%	17.7%	13.5%
49 30 - 40	N5559/58	15.6%	0.3%	0.0%	0.3%	7.8%	11.1%	15.6%	65.2%
49 65 - 75	N5559/59	13.9%	3.8%	0.4%	3.3%	22.2%	17.5%	21.4%	35.1%
50 0 - 10	N5559/60	5.2%	11.8%	2.7%	9.1%	49.2%	18.5%	9.4%	11.0%
50 20 - 30	N5559/61	6.3%	12.9%	7.3%	5.6%	46.7%	22.8%	10.7%	6.9%
50 40 - 50	N5559/62	6.2%	8.5%	1.8%	6.7%	55.3%	18.6%	7.6%	10.0%
50 65 - 75	N5559/63	4.8%	20.0%	12.8%	7.2%	38.5%	21.5%	7.1%	13.0%
50 90 - 100	N5559/64	12.6%	2.4%	0.0%	2.4%	36.4%	23.7%	6.3%	31.2%
51 0 - 10	N5559/65	14.2%	1.4%	0.0%	1.4%	13.0%	29.9%	33.8%	22.0%
51 15 - 25	N5559/66	11.4%	6.7%	0.8%	5.9%	8.1%	20.1%	40.2%	24.9%
51 30 - 40	N5559/67	15.8%	0.0%	0.0%	0.0%	6.2%	16.7%	30.9%	46.3%
51 65 - 75	N5559/68	14.1%	1.3%	0.0%	1.3%	7.1%	30.6%	18.1%	42.9%
52 0 - 10	N5559/69	7.3%	3.4%	0.0%	3.4%	48.3%	25.2%	10.4%	12.8%
52 20 - 30	N5559/70	5.3%	2.5%	0.0%	2.5%	53.0%	26.0%	6.9%	11.5%
52 40 - 50	N5559/71	6.2%	9.1%	5.3%	3.8%	52.5%	18.1%	7.1%	13.1%
52 65 - 75	N5559/72	6.8%	19.3%	13.7%	5.6%	49.6%	16.5%	6.9%	7.7%
52 90 - 100	N5559/73	9.8%	8.1%	3.5%	4.5%	45.9%	19.5%	8.5%	18.1%
53 0 - 10	N5559/74	11.5%	1.7%	1.2%	0.5%	21.7%	43.7%	16.8%	16.0%
53 20 - 30	N5559/75	14.4%	0.0%	0.0%	0.0%	21.9%	23.1%	12.2%	4
53 40 - 50	N5559/76	12.4%	0.0%	0.0%	0.0%	28.4%	27.3%	10.8%	3
54 0 - 10	N5559/77	5.0%	7.1%	2.4%	4.6%	57.3%	19.1%	9.7%	6

checked: .....
Graham Lancaster (Nata signatory)
Laboratory Manager

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

317 soil samples supplied by Minesoils Pty Ltd on 12th December, 2022 - Lab Job No. N5559.
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 2 BSAL.
Address Not Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
54 20 - 30	N5559/78	2.9%	11.8%	4.5%	7.3%	54.1%	18.6%	10.7%	4.8%
54 40 - 50	N5559/79	5.4%	9.4%	2.6%	6.8%	49.2%	24.0%	9.8%	7.6%
54 60 - 70	N5559/80	8.6%	5.8%	0.0%	5.8%	44.3%	19.9%	11.4%	18.7%
55 0 - 10	N5559/81	6.2%	1.6%	0.0%	1.6%	44.7%	27.6%	15.1%	11.1%
55 20 - 30	N5559/82	7.1%	6.0%	1.3%	4.7%	48.0%	25.9%	12.2%	7.9%
55 40 - 50	N5559/83	8.6%	7.3%	3.2%	4.1%	47.0%	23.3%	13.1%	9.3%
55 65 - 75	N5559/84	10.5%	8.6%	3.3%	5.3%	45.3%	16.1%	9.7%	20.4%
55 85 - 95	N5559/85	12.3%	0.6%	0.0%	0.6%	39.8%	18.3%	9.0%	32.3%
56 0 - 10	N5559/86	11.3%	5.9%	3.0%	2.9%	25.2%	30.3%	23.7%	14.8%
56 15 - 25	N5559/87	9.1%	6.6%	0.8%	5.8%	34.9%	23.7%	23.4%	11.4%
56 35 - 45	N5559/88	9.8%	7.2%	3.6%	3.6%	30.7%	30.8%	17.0%	14.3%
56 50 - 60	N5559/89	9.1%	12.4%	3.8%	8.6%	50.4%	16.7%	6.5%	13.9%
57 0 - 10	N5559/90	9.5%	7.8%	6.8%	1.0%	8.7%	25.8%	31.0%	26.6%
57 15 - 25	N5559/91	14.4%	0.5%	0.0%	0.5%	4.0%	12.7%	23.0%	59.7%
57 35 - 45	N5559/92	20.2%	0.0%	0.0%	0.0%	1.4%	9.5%	7.3%	81.8%
57 60 - 70	N5559/93	17.5%	0.0%	0.0%	0.0%	0.4%	13.3%	18.2%	68.1%
58 0 - 10	N5559/94	11.4%	0.4%	0.0%	0.4%	14.1%	33.8%	32.8%	18.8%
58 15 - 25	N5559/95	8.2%	0.4%	0.0%	0.4%	8.7%	30.5%	39.1%	21.2%
58 30 - 40	N5559/96	16.3%	0.0%	0.0%	0.0%	2.3%	17.1%	27.0%	53.5%
58 65 - 75	N5559/97	16.0%	15.5%	9.2%	6.2%	10.9%	16.5%	26.7%	30.4%
59 0 - 10	N5559/98	10.3%	3.9%	2.8%	1.0%	26.3%	37.6%	14.6%	17.7%
59 15 - 25	N5559/99	17.1%	0.7%	0.0%	0.7%	8.9%	22.9%	9.9%	57.6%
59 40 - 50	N5559/100	17.8%	0.2%	0.0%	0.2%	3.7%	17.8%	23.2%	55.1%
60 0 - 8	N5559/101	7.4%	6.3%	4.8%	1.5%	8.7%	52.3%	17.6%	15.1%
60 8 - 15	N5559/102	5.6%	14.2%	7.1%	7.1%	8.8%	48.3%	16.1%	12.6%
60 20 - 30	N5559/103	14.6%	0.0%	0.0%	0.0%	4.0%	29.5%	2.5%	64.0%
61 0 - 10	N5559/104	5.7%	2.3%	0.7%	1.6%	10.3%	48.9%	20.8%	17.7%
61 15 - 25	N5559/105	13.1%	0.0%	0.0%	0.0%	3.2%	34.5%	11.1%	51.3%
61 50 - 60	N5559/106	12.8%	0.0%	0.0%	0.0%	2.8%	33.1%	19.0%	45.0%
62 0 - 10	N5559/107	17.0%	0.0%	0.0%	0.0%	32.2%	17.0%	30.9%	19.9%
62 20 - 30	N5559/108	14.5%	0.0%	0.0%	0.0%	33.8%	42.1%	10.2%	13.8%
62 40 - 50	N5559/109	18.1%	0.0%	0.0%	0.0%	35.3%	41.4%	6.9%	16.4%
62 65 - 75	N5559/110	16.0%	0.6%	0.0%	0.6%	46.3%	25.7%	13.5%	13.9%
63 0 - 5	N5559/111	14.4%	1.4%	0.0%	1.4%	21.1%	46.4%	13.1%	18.0%
63 10 - 20	N5559/112	8.2%	6.9%	5.1%	1.7%	14.3%	44.7%	14.5%	19.7%
64 0 - 10	N5559/113	9.7%	3.2%	0.5%	2.8%	43.5%	29.8%	14.2%	9.3%
64 20 - 30	N5559/114	6.8%	5.4%	0.5%	4.9%	36.7%	34.3%	13.1%	10.6%
64 40 - 50	N5559/115	13.7%	0.3%	0.0%	0.3%	22.5%	26.8%	6.8%	43.6%
64 65 - 75	N5559/116	11.5%	3.2%	0.7%	2.5%	41.9%	28.0%	1.9%	25.0%
65 0 - 10	N5559/117	13.1%	4.7%	1.7%	3.0%	25.0%	41.8%	15.1%	13.3%
65 20 - 30	N5559/118	10.3%	1.6%	0.0%	1.6%	29.9%	40.8%	15.7%	12.1%
65 35 - 45	N5559/119	15.5%	0.2%	0.0%	0.2%	11.4%	38.1%	9.5%	40.8%
65 65 - 75	N5559/120	15.9%	0.6%	0.0%	0.6%	23.6%	39.0%	1.6%	35.2%
66 0 - 10	N5559/121	11.5%	2.5%	0.0%	2.5%	28.0%	37.1%	17.4%	15.0%
66 10 - 20	N5559/122	7.6%	12.7%	6.0%	6.7%	24.3%	34.5%	16.8%	11.7%
66 20 - 30	N5559/123	18.5%	0.2%	0.0%	0.2%	6.6%	28.9%	11.0%	53.3%
66 50 - 60	N5559/124	17.5%	24.6%	22.8%	1.8%	7.2%	24.8%	9.2%	34.3%
67 0 - 10	N5559/125	12.3%	2.9%	0.0%	2.9%	45.6%	31.4%	10.3%	9.8%
67 15 - 25	N5559/126	6.5%	4.3%	0.3%	4.0%	37.3%	38.0%	11.6%	8.8%
67 30 - 40	N5559/127	12.7%	3.7%	1.4%	2.3%	20.7%	20.3%	9.1%	46.2%
67 65 - 75	N5559/128	12.8%	14.9%	10.1%	4.8%	25.3%	23.4%	7.4%	28.9%
68 0 - 10	N5559/129	13.8%	3.5%	0.0%	3.5%	25.1%	40.4%	14.3%	16.8%
68 15 - 25	N5559/130	7.8%	3.4%	0.0%	3.4%	19.1%	42.8%	23.5%	11.4%
68 30 - 40	N5559/131	16.0%	0.5%	0.0%	0.5%	10.2%	35.4%	9.9%	44.0%
68 50 - 60	N5559/132	14.2%	17.4%	9.9%	7.4%	24.8%	29.4%	5.7%	22.6%
69 0 - 10	N5559/133	17.0%	2.5%	0.0%	2.5%	27.0%	36.2%	18.8%	15.5%
69 20 - 30	N5559/134	10.3%	2.2%	0.0%	2.2%	32.5%	33.1%	16.0%	16.2%
69 40 - 50	N5559/135	14.0%	1.0%	0.0%	1.0%	17.4%	30.0%	13.9%	37.7%
69 65 - 75	N5559/136	14.0%	0.7%	0.0%	0.7%	20.4%	41.6%	7.8%	29.4%
70 0 - 10	N5559/137	13.0%	14.8%	12.7%	2.1%	5.9%	30.3%	20.6%	28.4%
70 20 - 30	N5559/138	16.0%	1.2%	0.0%	1.2%	6.1%	21.0%	13.0%	58.7%
70 40 - 50	N5559/139	18.0%	5.2%	4.4%	0.8%	6.0%	15.2%	9.5%	63.9%
70 65 - 75	N5559/140	12.1%	18.3%	15.0%	3.3%	8.7%	26.2%	7.7%	39.1%
71 0 - 10	N5559/141	4.0%	10.1%	5.6%	4.5%	38.9%	29.5%	7.1%	14.4%
71 10 - 20	N5559/142	5.9%	28.1%	16.3%	11.8%	13.0%	40.9%	6.8%	11.2%
71 35 - 45	N5559/143	13.5%	7.3%	2.5%	4.8%	16.8%	20.7%	6.8%	48.4%
72 0 - 10	N5559/144	10.6%	12.4%	6.3%	6.1%	13.5%	52.0%	10.6%	11.6%
72 20 - 30	N5559/145	8.2%	10.7%	6.0%	4.7%	33.6%	27.4%	13.2%	15.1%
72 40 - 50	N5559/146	14.9%	1.2%	0.0%	1.2%	20.8%	22.8%	6.9%	48.4%
72 65 - 75	N5559/147	14.1%	3.3%	0.0%	3.3%	27.0%	31.7%	6.2%	31.8%
73 0 - 10	N5559/148	12.8%	9.9%	3.1%	6.8%	47.0%	24.1%	7.5%	11.5%
73 25 - 35	N5559/149	7.5%	16.4%	11.3%	5.2%	39.4%	27.9%	8.1%	8.2%
73 45 - 55	N5559/150	15.5%	2.9%	0.0%	2.9%	37.3%	20.1%	10.8%	28.8%
73 65 - 75	N5559/151	10.6%	27.7%	20.2%	7.5%	22.4%	23.5%	8.8%	17.6%
74 0 - 10	N5559/152	19.7%	6.1%	0.7%	5.4%	33.5%	35.4%	11.6%	1:
74 20 - 30	N5559/153	13.4%	13.8%	7.2%	6.6%	27.3%	36.6%	12.1%	1(
74 40 - 50	N5559/154	13.0%	11.3%	4.4%	6.9%	30.9%	35.7%	7.4%	1.

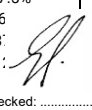


checked: .....
Graham Lancaster (Nata signatory)
Laboratory Manager

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

317 soil samples supplied by Minesoils Pty Ltd on 12th December, 2022 - Lab Job No. N5559.
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 2 BSAL.
Address Not Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
74 65 - 75	N5559/155	16.5%	6.8%	4.7%	2.1%	14.3%	34.1%	8.9%	36.0%
75 0 - 10	N5559/156	9.6%	5.7%	2.3%	3.4%	22.1%	30.4%	26.5%	15.4%
75 25 - 35	N5559/157	16.6%	0.0%	0.0%	0.0%	9.3%	21.5%	16.4%	52.9%
75 40 - 50	N5559/158	14.4%	3.7%	1.8%	2.0%	19.8%	22.7%	16.6%	37.1%
75 65 - 75	N5559/159	12.0%	8.1%	1.2%	6.9%	30.1%	22.8%	10.7%	28.4%
76 0 - 10	N5559/160	18.5%	27.6%	4.2%	23.4%	39.5%	8.4%	10.1%	14.4%
76 10 - 20	N5559/161	6.9%	17.7%	1.1%	16.6%	43.2%	16.0%	12.4%	10.8%
76 30 - 40	N5559/162	17.3%	1.1%	0.0%	1.1%	7.6%	10.9%	27.1%	53.2%
76 65 - 75	N5559/163	17.2%	1.1%	0.9%	0.2%	2.1%	18.7%	45.3%	32.8%
77 0 - 10	N5559/164	14.2%	6.9%	0.7%	6.2%	32.6%	26.3%	19.3%	15.0%
77 20 - 30	N5559/165	8.2%	4.4%	0.6%	3.8%	38.9%	28.7%	17.1%	10.9%
77 45 - 55	N5559/166	13.6%	0.5%	0.0%	0.5%	26.3%	20.4%	11.1%	41.8%
77 65 - 75	N5559/167	12.0%	4.5%	0.6%	3.9%	44.9%	22.5%	4.8%	23.5%
78 0 - 10	N5559/168	18.3%	7.0%	0.0%	7.0%	37.8%	21.7%	18.8%	14.6%
78 15 - 25	N5559/169	9.5%	19.7%	10.9%	8.9%	44.4%	22.5%	8.5%	4.8%
78 40 - 50	N5559/170	8.9%	28.6%	11.3%	17.3%	46.5%	11.1%	4.5%	9.3%
78 70 - 75	N5559/171	13.9%	2.6%	2.2%	0.4%	10.4%	36.6%	16.1%	34.3%
79 0 - 10	N5559/172	10.1%	1.8%	0.0%	1.8%	5.3%	46.8%	23.1%	22.9%
79 20 - 30	N5559/173	11.9%	0.0%	0.0%	0.0%	1.8%	30.3%	21.2%	46.7%
79 45 - 55	N5559/174	12.8%	0.0%	0.0%	0.0%	1.9%	31.1%	18.4%	48.6%
79 65 - 75	N5559/175	15.1%	0.4%	0.0%	0.4%	4.1%	36.3%	23.6%	35.6%
80 0 - 10	N5559/176	14.0%	15.7%	6.5%	9.2%	19.4%	39.6%	12.3%	13.0%
80 20 - 30	N5559/177	16.9%	0.0%	0.0%	0.0%	13.5%	25.5%	9.4%	51.7%
80 40 - 50	N5559/178	16.6%	0.2%	0.0%	0.2%	6.7%	32.4%	14.5%	46.2%
80 65 - 75	N5559/179	17.2%	0.0%	0.0%	0.0%	0.9%	21.3%	33.4%	44.5%
81 0 - 10	N5559/180	42.2%	9.1%	0.6%	8.5%	67.4%	1.3%	12.6%	9.5%
81 20 - 30	N5559/181	9.3%	17.9%	7.5%	10.4%	41.9%	21.3%	10.2%	8.7%
81 45 - 55	N5559/182	10.9%	31.3%	25.9%	5.4%	32.0%	19.3%	1.3%	16.2%
81 65 - 75	N5559/183	9.6%	14.3%	2.2%	12.1%	47.7%	16.8%	7.2%	13.9%
82 0 - 6	N5559/184	7.9%	2.6%	0.4%	2.2%	18.6%	34.1%	20.6%	24.1%
82 6 - 12	N5559/185	12.6%	1.6%	0.0%	1.6%	34.9%	35.8%	13.6%	14.1%
82 15 - 25	N5559/186	17.1%	0.4%	0.0%	0.4%	4.6%	22.0%	14.3%	58.7%
82 35 - 45	N5559/187	16.6%	0.0%	0.0%	0.0%	9.0%	31.8%	19.1%	40.0%
83 0 - 10	N5559/188	37.9%	2.4%	0.0%	2.4%	49.5%	27.7%	8.2%	12.2%
83 15 - 25	N5559/189	12.2%	6.7%	1.7%	5.0%	48.0%	21.9%	12.6%	10.8%
83 35 - 45	N5559/190	21.4%	2.4%	1.4%	1.0%	18.7%	21.2%	0.3%	57.4%
83 65 - 75	N5559/191	15.4%	1.2%	0.0%	1.2%	36.5%	14.8%	7.4%	40.1%
84 0 - 10	N5559/192	9.5%	4.1%	0.8%	3.3%	44.5%	32.1%	11.4%	8.0%
84 15 - 25	N5559/193	6.7%	10.1%	3.6%	6.5%	47.0%	23.7%	10.9%	8.3%
84 35 - 45	N5559/194	5.4%	18.8%	4.1%	14.7%	48.8%	18.9%	5.3%	8.2%
84 65 - 75	N5559/195	12.2%	7.1%	0.0%	7.1%	44.0%	23.8%	1.8%	23.2%
85 0 - 10	N5559/196	30.5%	3.6%	0.0%	3.6%	19.0%	25.9%	28.4%	23.1%
85 20 - 30	N5559/197	12.6%	5.1%	1.4%	3.7%	29.7%	29.7%	27.3%	8.3%
85 40 - 50	N5559/198	8.2%	21.2%	5.9%	15.3%	52.1%	17.9%	7.7%	1.2%
85 65 - 75	N5559/199	8.0%	15.2%	9.0%	6.2%	53.5%	18.9%	6.7%	5.8%
85 90 - 100	N5559/200	14.3%	5.6%	0.9%	4.7%	46.2%	18.9%	5.9%	23.4%
86 0 - 10	N5559/201	12.5%	1.5%	0.0%	1.5%	22.6%	43.9%	19.4%	12.7%
86 20 - 30	N5559/202	10.0%	0.7%	0.0%	0.7%	18.8%	42.1%	20.8%	17.5%
86 40 - 50	N5559/203	15.8%	0.7%	0.0%	0.7%	7.8%	30.0%	17.8%	43.6%
86 65 - 75	N5559/204	14.4%	1.2%	0.0%	1.2%	12.2%	37.1%	16.0%	33.6%
87 0 - 10	N5559/205	11.2%	4.9%	2.9%	2.0%	9.1%	44.2%	24.9%	16.9%
87 15 - 25	N5559/206	16.2%	0.0%	0.0%	0.0%	2.0%	23.2%	26.7%	48.0%
87 35 - 45	N5559/207	16.0%	0.6%	0.0%	0.6%	3.4%	24.6%	26.8%	44.5%
88 0 - 10	N5559/208	21.9%	1.0%	0.0%	1.0%	12.2%	39.2%	28.6%	19.0%
88 10 - 20	N5559/209	13.8%	2.5%	0.0%	2.5%	17.0%	27.3%	31.5%	21.8%
88 30 - 40	N5559/210	16.8%	0.4%	0.0%	0.4%	5.7%	42.5%	17.2%	34.3%
88 65 - 75	N5559/211	17.6%	1.5%	0.0%	1.5%	7.9%	50.1%	17.5%	22.9%
89 0 - 10	N5559/212	3.9%	2.0%	0.7%	1.3%	60.8%	22.0%	9.2%	6.1%
89 10 - 20	N5559/213	6.3%	5.5%	1.4%	4.1%	57.3%	21.0%	8.2%	8.0%
89 30 - 40	N5559/214	16.1%	0.5%	0.0%	0.5%	9.3%	36.8%	13.2%	40.1%
90 0 - 10	N5559/215	10.7%	3.3%	1.1%	2.3%	52.9%	27.1%	8.2%	8.5%
90 20 - 30	N5559/216	17.6%	4.6%	0.9%	3.7%	56.2%	12.0%	13.4%	13.8%
90 40 - 50	N5559/217	3.9%	0.5%	0.0%	0.5%	27.6%	25.6%	8.5%	37.9%
91 0 - 10	N5559/218	6.3%	1.8%	0.0%	1.8%	11.4%	52.5%	15.6%	18.7%
91 10 - 15	N5559/219	16.1%	4.7%	1.6%	3.1%	9.3%	50.2%	15.1%	20.8%
91 20 - 30	N5559/220	10.7%	0.5%	0.0%	0.5%	1.8%	31.6%	9.2%	56.8%
91 50 - 60	N5559/221	15.1%	0.2%	0.0%	0.2%	1.3%	23.6%	25.4%	49.4%
92 0 - 10	N5559/222	4.7%	10.8%	1.9%	8.9%	21.1%	33.5%	20.2%	14.3%
92 25 - 35	N5559/223	8.8%	15.3%	6.6%	8.7%	23.4%	29.7%	20.8%	10.7%
92 40 - 50	N5559/224	21.9%	2.2%	0.0%	2.2%	6.7%	20.2%	59.3%	11.6%
93 0 - 10	N5559/225	9.6%	7.6%	0.0%	7.6%	19.2%	43.1%	26.7%	3.3%
93 20 - 30	N5559/226	12.3%	7.4%	1.6%	5.8%	15.2%	42.1%	30.5%	4.8%
93 40 - 50	N5559/227	21.3%	0.1%	0.0%	0.1%	8.1%	30.4%	54.3%	7.0%
93 65 - 75	N5559/228	20.2%	3.7%	0.5%	3.3%	12.0%	25.7%	51.1%	7.5%
94 0 - 10	N5559/229	12.0%	13.2%	6.9%	6.3%	13.0%	42.9%	24.7%	6
94 20 - 30	N5559/230	16.2%	0.6%	0.0%	0.6%	11.3%	35.0%	15.4%	3
95 0 - 10	N5559/231	8.3%	5.8%	3.2%	2.6%	16.8%	44.1%	20.7%	1



checked: .....
Graham Lancaster (Nata signatory)
Laboratory Manager

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

317 soil samples supplied by Minesoils Pty Ltd on 12th December, 2022 - Lab Job No. N5559.
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 2 BSAL.
Address Not Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
95 20 - 30	N5559/232	13.8%	4.6%	2.1%	2.4%	25.8%	41.3%	17.8%	10.6%
95 50 - 60	N5559/233	15.3%	0.6%	0.5%	0.1%	15.1%	39.0%	19.0%	26.3%
96 0 - 10	N5559/234	7.4%	8.1%	1.3%	6.8%	14.3%	44.0%	24.2%	9.4%
96 20 - 30	N5559/235	8.5%	3.8%	0.0%	3.8%	16.7%	42.9%	27.0%	9.6%
96 40 - 50	N5559/236	17.9%	0.0%	0.0%	0.0%	6.5%	31.2%	18.6%	43.7%
96 65 - 75	N5559/237	17.1%	16.4%	14.1%	2.3%	6.9%	38.2%	13.2%	25.3%
97 0 - 10	N5559/238	6.6%	15.0%	2.0%	13.0%	14.9%	39.9%	20.8%	9.4%
97 20 - 30	N5559/239	7.7%	27.5%	15.1%	12.5%	13.8%	36.0%	16.4%	6.1%
97 40 - 50	N5559/240	17.5%	14.8%	4.6%	10.1%	8.0%	20.8%	11.9%	44.5%
98 0 - 10	N5559/241	29.2%	0.4%	0.0%	0.4%	9.2%	53.8%	24.1%	12.5%
98 20 - 30	N5559/242	22.5%	0.3%	0.0%	0.3%	8.5%	49.2%	28.5%	13.4%
98 40 - 50	N5559/243	17.4%	3.9%	0.0%	3.9%	25.8%	35.4%	23.6%	11.3%
98 65 - 75	N5559/244	17.3%	4.7%	1.3%	3.4%	27.0%	34.6%	18.3%	15.4%
98 90 - 100	N5559/245	16.5%	4.2%	0.6%	3.6%	9.6%	47.5%	12.2%	26.6%
99 0 - 10	N5559/246	22.0%	0.2%	0.0%	0.2%	11.0%	55.1%	21.7%	12.0%
99 30 - 40	N5559/247	18.6%	0.0%	0.0%	0.0%	11.8%	57.4%	18.9%	11.9%
99 50 - 60	N5559/248	19.5%	0.0%	0.0%	0.0%	21.3%	50.1%	11.6%	17.0%
99 65 - 75	N5559/249	21.0%	0.0%	0.0%	0.0%	9.1%	31.6%	21.5%	37.8%
100 0 - 10	N5559/250	9.3%	3.3%	2.0%	1.3%	46.3%	38.6%	6.5%	5.4%
100 20 - 30	N5559/251	7.6%	0.8%	0.0%	0.8%	47.2%	39.8%	5.8%	6.4%
100 40 - 50	N5559/252	9.4%	1.9%	0.0%	1.9%	33.3%	46.1%	8.1%	10.6%
100 65 - 75	N5559/253	8.2%	2.3%	0.0%	2.3%	47.9%	40.7%	5.3%	3.8%
100 95 - 105	N5559/254	12.7%	0.5%	0.0%	0.5%	12.9%	49.2%	16.4%	21.0%
101 0 - 10	N5559/255	7.1%	0.8%	0.2%	0.6%	26.5%	42.5%	20.4%	9.8%
101 20 - 30	N5559/256	9.1%	0.2%	0.0%	0.2%	25.7%	39.4%	20.8%	14.0%
101 40 - 50	N5559/257	17.2%	0.6%	0.0%	0.6%	11.5%	32.5%	19.0%	36.4%
101 70 - 75	N5559/258	16.3%	3.6%	0.4%	3.2%	13.3%	26.8%	19.5%	36.8%
102 0 - 10	N5559/259	5.1%	2.1%	0.0%	2.1%	18.2%	33.4%	30.4%	15.9%
102 20 - 30	N5559/260	5.8%	5.9%	2.7%	3.2%	12.4%	30.7%	38.2%	12.8%
102 40 - 50	N5559/261	17.1%	0.5%	0.0%	0.5%	8.9%	21.2%	21.8%	47.6%
102 65 - 75	N5559/262	13.5%	3.2%	0.0%	3.2%	23.3%	15.8%	17.7%	40.1%
103 0 - 10	N5559/263	6.4%	6.2%	0.0%	6.2%	47.3%	18.9%	15.1%	12.6%
103 20 - 30	N5559/264	6.3%	12.6%	3.4%	9.2%	42.6%	17.4%	18.0%	9.4%
103 40 - 50	N5559/265	17.1%	12.0%	3.6%	8.4%	43.1%	9.4%	20.0%	15.4%
103 65 - 75	N5559/266	8.6%	2.5%	0.0%	2.5%	21.6%	24.2%	11.3%	40.4%
104 0 - 10	N5559/267	9.6%	1.1%	0.0%	1.1%	60.0%	21.8%	7.3%	9.8%
104 20 - 30	N5559/268	7.5%	5.1%	0.6%	4.5%	61.1%	19.1%	8.3%	6.4%
105 0 - 10	N5559/269	6.7%	1.2%	0.0%	1.2%	35.1%	40.5%	12.8%	10.5%
105 20 - 30	N5559/270	4.1%	14.2%	7.3%	6.9%	31.4%	32.6%	14.1%	7.7%
105 40 - 50	N5559/271	15.3%	4.2%	3.4%	0.8%	22.6%	22.9%	6.8%	43.5%
105 65 - 75	N5559/272	15.4%	13.9%	11.2%	2.7%	15.4%	31.9%	7.5%	31.2%
106 0 - 10	N5559/273	17.8%	7.8%	0.4%	7.4%	39.3%	19.4%	11.4%	22.2%
106 20 - 25	N5559/274	17.8%	0.3%	0.0%	0.3%	39.0%	25.8%	14.5%	20.5%
106 40 - 50	N5559/275	17.1%	2.3%	0.5%	1.8%	32.7%	20.0%	16.2%	28.8%
107 0 - 10	N5559/276	13.6%	1.8%	0.0%	1.8%	22.9%	38.4%	20.7%	16.2%
107 20 - 30	N5559/277	7.7%	6.3%	2.8%	3.5%	23.6%	43.5%	17.0%	9.7%
107 45 - 55	N5559/278	18.0%	0.5%	0.0%	0.5%	11.2%	34.9%	10.0%	43.4%
107 70 - 75	N5559/279	14.7%	4.3%	1.3%	3.1%	40.1%	21.4%	6.8%	27.4%
108 0 - 10	N5559/280	3.3%	7.5%	2.0%	5.5%	58.1%	25.1%	4.8%	4.5%
108 20 - 30	N5559/281	2.3%	9.7%	3.4%	6.3%	59.3%	22.6%	4.6%	3.8%
109 0 - 10	N5559/282	7.1%	2.3%	0.3%	2.0%	40.2%	39.4%	12.6%	5.5%
109 20 - 30	N5559/283	2.5%	11.3%	3.9%	7.4%	33.9%	35.7%	16.6%	2.4%
109 40 - 50	N5559/284	12.9%	4.6%	0.5%	4.1%	28.2%	21.7%	10.3%	35.2%
109 65 - 75	N5559/285	11.9%	4.0%	0.0%	4.0%	38.1%	28.1%	14.1%	15.7%
110 0 - 10	N5559/286	5.4%	6.8%	1.0%	5.8%	38.5%	34.3%	17.1%	3.3%
110 20 - 30	N5559/287	6.7%	6.3%	0.0%	6.3%	43.2%	27.0%	14.8%	8.7%
110 40 - 50	N5559/288	10.4%	12.5%	6.3%	6.2%	28.8%	33.3%	7.9%	17.6%
110 70 - 75	N5559/289	11.4%	15.1%	8.6%	6.4%	34.2%	23.8%	11.7%	15.3%
111 0 - 10	N5559/290	3.7%	4.8%	0.0%	4.8%	56.2%	22.4%	9.2%	7.4%
111 20 - 30	N5559/291	4.5%	9.4%	3.5%	5.9%	51.6%	20.9%	10.2%	7.8%
111 40 - 50	N5559/292	8.2%	7.9%	1.4%	6.5%	47.1%	21.1%	12.0%	11.9%
111 65 - 75	N5559/293	13.8%	6.3%	0.0%	6.3%	32.7%	22.9%	10.9%	27.2%
112 0 - 10	N5559/294	8.9%	37.3%	15.3%	22.0%	12.3%	24.1%	18.8%	7.5%
112 20 - 30	N5559/295	9.5%	31.6%	15.6%	16.0%	16.4%	22.0%	19.3%	10.7%
112 40 - 50	N5559/296	12.1%	20.4%	7.4%	13.0%	11.8%	23.5%	8.7%	35.6%
113 0 - 10	N5559/297	4.4%	3.2%	0.0%	3.2%	36.7%	26.6%	20.5%	13.1%
113 20 - 30	N5559/298	3.5%	8.8%	2.8%	6.1%	32.5%	27.7%	20.3%	10.7%
113 40 - 50	N5559/299	14.2%	0.9%	0.0%	0.9%	16.2%	22.5%	16.6%	43.8%
113 65 - 75	N5559/300	12.1%	4.6%	2.9%	1.7%	26.1%	31.3%	3.8%	34.1%
114 0 - 10	N5559/301	8.3%	11.3%	8.2%	3.1%	14.8%	46.3%	16.9%	10.7%
114 20 - 30	N5559/302	10.1%	0.3%	0.0%	0.3%	18.8%	48.1%	19.0%	13.9%
114 40 - 50	N5559/303	20.2%	0.1%	0.0%	0.1%	6.2%	30.1%	12.7%	50.9%
115 0 - 10	N5559/304	8.2%	7.8%	6.7%	1.1%	5.3%	37.3%	27.9%	21.6%
115 20 - 30	N5559/305	11.7%	0.7%	0.0%	0.7%	8.8%	29.1%	29.5%	31.8%
116 0 - 10	N5559/306	4.0%	26.2%	18.5%	7.7%	15.6%	26.8%	18.4%	1:
116 20 - 30	N5559/307	18.9%	0.4%	0.0%	0.4%	4.7%	14.0%	4.4%	7(
116 40 - 50	N5559/308	18.0%	0.5%	0.0%	0.5%	6.3%	21.4%	9.8%	6:

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Graham Lancaster (Nata signatory)
Laboratory Manager

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

317 soil samples supplied by Minesoils Pty Ltd on 12th December, 2022 - Lab Job No. N5559.
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 2 BSAL.
Address Not Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
116 55 - 65	N5559/309	20.3%	14.7%	12.9%	1.8%	6.6%	25.5%	14.0%	39.2%
117 0 - 10	N5559/310	4.1%	7.8%	0.6%	7.2%	37.5%	38.9%	9.1%	6.6%
117 20 - 30	N5559/311	4.0%	7.8%	1.5%	6.3%	32.8%	43.2%	8.4%	7.9%
117 40 - 50	N5559/312	9.3%	12.9%	6.1%	6.9%	31.4%	32.9%	8.0%	14.7%
117 60 - 70	N5559/313	12.8%	23.0%	17.0%	6.0%	13.9%	28.3%	5.4%	29.4%
118 0 - 10	N5559/314	8.8%	10.1%	6.0%	4.1%	14.7%	34.3%	25.4%	15.5%
118 10 - 20	N5559/315	8.6%	11.3%	2.2%	9.1%	15.5%	34.5%	26.5%	12.1%
118 30 - 40	N5559/316	14.4%	17.8%	11.1%	6.7%	10.6%	19.6%	16.5%	35.5%
118 65 - 75	N5559/317	19.1%	0.1%	0.0%	0.1%	4.0%	27.8%	7.0%	61.0%

Note:
1: The Hydrometer Analysis method was used to determine the percentage sand, silt and clay,
modified from SOP meth004 (California Dept of Pesticide Regulation), using method of Gee & Bauder (1986),
in *Methods of Soil Analysis. Part 1* Agron. Monogr. 9 (2nd Ed). Klute, A., American Soc. of Agronomy Inc., Soil Sci. Soc. America Inc., Madison WI: 383-411.
2: Australian Standard 1289.3.8.1-1997 (see attached)
3. Analysis conducted between sample arrival date and reporting date.
4. This report is not to be reproduced except in full. Results only relate to the item tested.
5. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal).
6. This report was issued on 23/01/2023.



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Graham Lancaster (Nata signatory)
Laboratory Manager

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

32 soil samples supplied by Minesoils Pty Ltd on 27th January, 2023 - Lab Job No. N6757
Analysis requested by Matt Hemingway. Job Ref MS-078 Wilpinjong Study Area 12 and 3 BSAL
No Address Given

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
136 0 - 10	N6757/1	1.5%	6.6%	2.0%	4.6%	41.1%	33.7%	10.2%	8.5%
136 20 - 30	N6757/2	4.9%	5.8%	0.0%	5.8%	41.6%	34.9%	11.4%	6.3%
136 40 - 50	N6757/3	14.8%	3.1%	0.0%	3.1%	24.3%	29.7%	3.3%	39.6%
136 65 - 75	N6757/4	14.9%	6.6%	4.1%	2.5%	15.1%	21.9%	1.5%	55.0%
137 0 - 10	N6757/5	6.6%	2.0%	0.0%	2.0%	25.8%	23.0%	32.9%	16.3%
137 20 - 30	N6757/6	4.1%	3.9%	0.7%	3.3%	29.0%	29.3%	24.4%	13.4%
137 40 - 50	N6757/7	13.0%	0.9%	0.0%	0.9%	11.6%	44.5%	19.3%	23.7%
137 65 - 75	N6757/8	13.9%	0.2%	0.0%	0.2%	8.3%	32.8%	23.5%	35.2%
138 0 - 10	N6757/9	6.8%	5.7%	0.0%	5.7%	42.9%	31.7%	9.9%	9.8%
138 20 - 30	N6757/10	3.6%	6.5%	0.9%	5.6%	40.8%	32.6%	11.9%	8.2%
138 40 - 50	N6757/11	5.0%	4.0%	0.0%	4.0%	39.9%	26.1%	16.0%	14.0%
138 70 - 75	N6757/12	12.9%	15.9%	10.9%	5.0%	36.4%	21.4%	1.1%	25.2%
139 0 - 10	N6757/13	9.9%	0.4%	0.0%	0.4%	3.1%	25.1%	27.0%	44.3%
139 20 - 30	N6757/14	15.1%	0.0%	0.0%	0.0%	0.9%	16.2%	27.7%	55.2%
139 40 - 50	N6757/15	15.3%	1.9%	1.0%	0.9%	1.0%	26.1%	30.3%	40.7%
139 65 - 75	N6757/16	15.2%	0.3%	0.0%	0.3%	5.3%	23.5%	30.0%	40.9%
140 0 - 10	N6757/17	1.9%	3.5%	0.0%	3.5%	28.5%	35.7%	18.5%	13.8%
140 20 - 30	N6757/18	3.4%	6.4%	0.6%	5.8%	25.5%	37.9%	18.6%	11.6%
140 40 - 50	N6757/19	6.0%	7.9%	5.5%	2.4%	25.7%	37.4%	11.2%	17.8%
140 65 - 75	N6757/20	13.4%	0.5%	0.0%	0.5%	20.2%	21.2%	28.7%	29.5%
141 0 - 10	N6757/21	18.8%	2.9%	0.0%	2.9%	4.8%	26.4%	33.2%	32.7%
141 20 - 30	N6757/22	17.8%	0.2%	0.0%	0.2%	1.9%	20.7%	29.1%	48.1%
141 40 - 50	N6757/23	21.9%	0.0%	0.0%	0.0%	0.3%	12.6%	21.0%	66.1%
141 65 - 75	N6757/24	20.1%	0.6%	0.0%	0.6%	2.6%	13.0%	31.7%	52.1%
142 0 - 10	N6757/25	17.2%	10.0%	2.4%	7.6%	22.4%	28.7%	18.0%	20.9%
142 20 - 30	N6757/26	13.4%	18.6%	2.1%	16.5%	20.8%	25.4%	17.7%	17.4%
142 40 - 50	N6757/27	16.2%	6.0%	1.8%	4.2%	14.4%	23.2%	18.1%	38.2%
142 65 - 75	N6757/28	23.1%	1.6%	0.0%	1.6%	6.1%	13.4%	7.5%	71.4%
143 0 - 10	N6757/29	5.4%	2.5%	1.0%	1.5%	17.9%	37.0%	21.0%	21.5%
143 20 - 30	N6757/30	7.2%	3.6%	0.6%	3.1%	20.0%	23.3%	30.7%	22.3%
143 40 - 50	N6757/31	7.3%	14.1%	10.6%	3.5%	15.9%	25.7%	21.9%	22.4%
143 65 - 75	N6757/32	8.5%	2.2%	0.0%	2.2%	17.3%	35.5%	19.7%	25.3%

Note:

1: The Hydrometer Analysis method was used to determine the percentage sand, silt and clay,
modified from SOP meth004 (California Dept of Pesticide Regulation), using method of Gee & Bauder (1986),
in *Methods of Soil Analysis. Part 1* Agron. Monogr. 9 (2nd Ed). Klute, A., American Soc. of Agronomy Inc., Soil Sci. Soc. America Inc., Madison WI: 383-411.
2: Australian Standard 1289.3.8.1-1997 (see attached)
3. Analysis conducted between sample arrival date and reporting date.
4. This report is not to be reproduced except in full. Results only relate to the item tested.
5. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal).
6. This report was issued on 10/02/2023.

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 1	Sample 2	Sample 3
		Sample ID:	E4 0 - 10	E4 20 - 30	E4 40 - 50
		Crop:	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/1	N5557/2	N5557/3
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.81	6.05	8.17
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.095	0.094	0.181
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	11	11	29
	Exchangeable Calcium (kg/ha)		4,932	5,069	12,823
	Exchangeable Calcium (mg/kg)		2,202	2,263	5,725
	Exchangeable Magnesium (cmol$_+$/kg)		2.9	4.6	6.9
	Exchangeable Magnesium (kg/ha)		790	1,250	1,886
	Exchangeable Magnesium (mg/kg)		353	558	842
	Exchangeable Potassium (cmol$_+$/kg)		1.9	1.1	1.6
	Exchangeable Potassium (kg/ha)		1,630	1,001	1,376
	Exchangeable Potassium (mg/kg)		728	447	614
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.53	0.53
	Exchangeable Sodium (kg/ha)		<33	272	275
	Exchangeable Sodium (mg/kg)		<15	121	123
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.04	0.03
	Exchangeable Aluminium (kg/ha)		4.9	8.9	5.1
	Exchangeable Aluminium (mg/kg)		2.2	4.0	2.3
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	16	18	38
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	69	64	76
	Magnesium (%)		18	26	18
	Potassium (%)		12	6.5	4.2
	Sodium - ESP (%)		0.28	3.0	1.4
	Aluminium (%)		0.15	0.25	0.07
	Hydrogen (%)		0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	3.8	2.5	4.1
	Emerson Aggregate Test (EAT)	**AS1289.3.8.1-2017	03	03	4 (7C)
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5 YR 2.5/3 Very Dark Brown	5 YR 4/4 Reddish Brown	7.5 YR 4/3 Brown
	Mottles Munsell Colour		..	..	5 Y 8/1 5 YR 4/4 2.5 YR 2.5/1 10 YR 4/4 White Reddish Brown Reddish Black Dark Yellowish Brown
	Degree of Mottling (%)		..	..	3 20 20 15

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

		Sample 1	Sample 2	Sample 3
	Sample ID:	E4 0 - 10	E4 20 - 30	E4 40 - 50
	Crop:	N/G	N/G	N/G
	Client:	Resource Strategies	Resource Strategies	Resource Strategies
Parameter	Method reference	N5557/1	N5557/2	N5557/3

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
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17. This report was issued on 20/12/2022.

Quality Checked: Kris Saville
Agricultural Co-Ordinator

Accreditation No. 14960
Accredited for compliance with ISO/IEC 17025 - Testing

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 4	Sample 5	Sample 6	Sample 7
		Sample ID:	E5 0 - 10	E5 10 - - 20	E5 30 - 40	E5 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/4	N5557/5	N5557/6	N5557/7
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.49	6.38	6.76	7.20
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.055	0.021	0.011	0.020
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.6	5.3	4.5	4.9
	Exchangeable Calcium (kg/ha)		3,429	2,374	2,011	2,184
	Exchangeable Calcium (mg/kg)		1,531	1,060	898	975
	Exchangeable Magnesium (cmol$_+$/kg)		2.3	1.3	1.4	4.6
	Exchangeable Magnesium (kg/ha)		622	346	388	1,242
	Exchangeable Magnesium (mg/kg)		278	155	173	554
	Exchangeable Potassium (cmol$_+$/kg)		1.5	0.92	0.67	0.90
	Exchangeable Potassium (kg/ha)		1,285	801	589	792
	Exchangeable Potassium (mg/kg)		573	358	263	354
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	<0.065	0.07
	Exchangeable Sodium (kg/ha)		<33	<33	<33	35
	Exchangeable Sodium (mg/kg)		<15	<15	<15	16
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.01	<0.01	<0.01
	Exchangeable Aluminium (kg/ha)		5.5	2.6	1.8	1.7
	Exchangeable Aluminium (mg/kg)		2.5	1.2	<1	<1
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	7.5	6.6	10
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	67	71	68	47
	Magnesium (%)		20	17	22	44
	Potassium (%)		13	12	10	8.7
	Sodium - ESP (%)		0.21	0.08	0.12	0.66
	Aluminium (%)		0.24	0.17	0.13	0.08
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	3.3	4.2	3.1	1.1
	Emerson Aggregate Test (EAT)	**AS1289.3.8.1-2017	03	03	02	02
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5 YR 2.5/3 Dark Reddish Brown	7.5 YR 2.5/3 Very Dark Brown	7.5 YR 3/4 Dark Brown	5 YR 4/6 Yellowish Red
	Mottles Munsell Colour		..	..	..	..
	Degree of Mottling (%)		..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 4	Sample 5	Sample 6	Sample 7
		Sample ID:	E5 0 - 10	E5 10 - - 20	E5 30 - 40	E5 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/4	N5557/5	N5557/6	N5557/7
Notes:						

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwc
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil res
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimat
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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 8	Sample 9	Sample 10	Sample 11
		Sample ID:	E6 0 - 10	E6 30 - 40	E6 50 - 60	E6 90 - 100
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/8	N5557/9	N5557/10	N5557/11
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.67	6.52	6.78	6.58
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.028	0.021	0.015	0.025
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.1	6.0	5.0	7.1
	Exchangeable Calcium (kg/ha)		1,849	2,701	2,230	3,209
	Exchangeable Calcium (mg/kg)		826	1,206	996	1,433
	Exchangeable Magnesium (cmol$_+$/kg)		1.9	3.9	3.2	4.4
	Exchangeable Magnesium (kg/ha)		517	1,072	862	1,200
	Exchangeable Magnesium (mg/kg)		231	479	385	536
	Exchangeable Potassium (cmol$_+$/kg)		0.62	0.59	0.40	0.78
	Exchangeable Potassium (kg/ha)		545	517	348	687
	Exchangeable Potassium (mg/kg)		243	231	155	307
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.07	0.07	0.18
	Exchangeable Sodium (kg/ha)		<33	39	38	92
	Exchangeable Sodium (mg/kg)		<15	17	17	41
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	0.02	0.01	0.03
	Exchangeable Aluminium (kg/ha)		2.1	4.4	2.2	6.7
	Exchangeable Aluminium (mg/kg)		<1	2.0	<1	3.0
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	6.7	11	8.6	13
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	62	57	58	57
	Magnesium (%)		28	37	37	35
	Potassium (%)		9.3	5.5	4.6	6.3
	Sodium - ESP (%)		0.31	0.70	0.85	1.4
	Aluminium (%)		0.16	0.21	0.13	0.27
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.2	1.5	1.6	1.6
	Emerson Aggregate Test (EAT)	**AS1289.3.8.1-2017	03	03	03	03
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5 YR 4/3 Brown	7.5 YR 4/6 Strong Brown	10 YR 5/6 Yellowish Brown	5 YR 4/6 Yellowish Red
	Mottles Munsell Colour		..	..	..	10 YR 2/1 10 YR 8/3
			..	..	..	Black Very Pale Brown
	Degree of Mottling (%)		..	..	..	3 15

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 8	Sample 9	Sample 10	Sample 11
		Sample ID:	E6 0 - 10	E6 30 - 40	E6 50 - 60	E6 90 - 100
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/8	N5557/9	N5557/10	N5557/11
Notes:						

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwc
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil res
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    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimat
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 12	Sample 13	Sample 14	Sample 15
		Sample ID:	E7 0 - 10	E7 20 - 30	E7 50 - 60	E7 100 - 100
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/12	N5557/13	N5557/14	N5557/15
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.06	6.60	8.63	8.72
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.048	0.009	0.060	0.037
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.0	4.7	7.6	5.2
	Exchangeable Calcium (kg/ha)		3,126	2,109	3,431	2,322
	Exchangeable Calcium (mg/kg)		1,396	941	1,532	1,037
	Exchangeable Magnesium (cmol$_+$/kg)		0.84	0.54	0.62	1.6
	Exchangeable Magnesium (kg/ha)		227	148	170	442
	Exchangeable Magnesium (mg/kg)		102	66	76	197
	Exchangeable Potassium (cmol$_+$/kg)		0.33	0.22	0.31	0.43
	Exchangeable Potassium (kg/ha)		290	192	271	381
	Exchangeable Potassium (mg/kg)		130	86	121	170
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		<15	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	0.01	0.01	<0.01
	Exchangeable Aluminium (kg/ha)		2.5	2.0	2.4	1.9
	Exchangeable Aluminium (mg/kg)		1.1	<1	1.1	<1
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	8.2	5.5	8.6	7.3
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	85	86	89	71
	Magnesium (%)		10	9.9	7.3	22
	Potassium (%)		4.1	4.0	3.6	6.0
	Sodium - ESP (%)		0.51	0.25	0.18	0.36
	Aluminium (%)		0.15	0.18	0.14	0.13
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	8.3	8.6	12	3.2
	Emerson Aggregate Test (EAT)	**AS1289.3.8.1-2017	03	03	02	02
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5 YR 2.5/2 Very Dark Brown	5 YR 3/4 Dark Reddish Brown	7.5 YR 4/4 Brown	7.5 YR 3/4 Dark Brown
	Mottles Munsell Colour		..	..	..	7.5 YR 7/2
	Degree of Mottling (%)		..	..	..	Pinkish Gray
			..	..	..	2.00

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 12	Sample 13	Sample 14	Sample 15
		Sample ID:	E7 0 - 10	E7 20 - 30	E7 50 - 60	E7 100 - 100
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/12	N5557/13	N5557/14	N5557/15
Notes:						

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwc
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimat
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Sample 16	Sample 17	Sample 18	Sample 19
		Sample ID:	E8 0 - 10	E8 20 - 30	E8 40 - 50	E8 70 - 80
		Crop:	N/G	N/G	N/G	N/G
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5557/16	N5557/17	N5557/18	N5557/19
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.81	6.91	7.13	6.73
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.050	0.016	0.013	0.012
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	9.6	7.6	5.8	4.9
	Exchangeable Calcium (kg/ha)		4,329	3,402	2,589	2,219
	Exchangeable Calcium (mg/kg)		1,933	1,519	1,156	991
	Exchangeable Magnesium (cmol$_+$/kg)		1.6	1.1	0.84	0.92
	Exchangeable Magnesium (kg/ha)		439	311	230	250
	Exchangeable Magnesium (mg/kg)		196	139	103	111
	Exchangeable Potassium (cmol$_+$/kg)		1.0	0.60	0.48	0.51
	Exchangeable Potassium (kg/ha)		888	525	421	443
	Exchangeable Potassium (mg/kg)		396	234	188	198
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		<15	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	<0.01	<0.01	0.01
	Exchangeable Aluminium (kg/ha)		2.2	1.5	1.4	2.2
	Exchangeable Aluminium (mg/kg)		1.0	<1	<1	<1
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	12	9.3	7.1	6.4
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	78	81	81	77
	Magnesium (%)		13	12	12	14
	Potassium (%)		8.2	6.4	6.8	7.9
	Sodium - ESP (%)		0.11	0.11	0.18	0.22
	Aluminium (%)		0.09	0.08	0.10	0.17
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	6.0	6.6	6.8	5.4
	Emerson Aggregate Test (EAT)	**AS1289.3.8.1-2017	03	03	03	02
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10 YR 2/2 Very Dark Brown	7.5 YR 2.5/2 Very Dark Brown	7.5 YR 2.5/3 Very Dark Brown	7.5 YR 2.5/3 Very Dark Brown
	Mottles Munsell Colour		..	..	..	..
	Degree of Mottling (%)		..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

		Sample 16	Sample 17	Sample 18	Sample 19
	Sample ID:	E8 0 - 10	E8 20 - 30	E8 40 - 50	E8 70 - 80
	Crop:	N/G	N/G	N/G	N/G
	Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
Parameter	Method reference	N5557/16	N5557/17	N5557/18	N5557/19
Notes:					

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwc
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil res
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimat
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
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17. This report was issued on 20/12/2022.

Quality Checked: Kris Saville
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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

				Heavy Soil	Medium Soil	Light Soil	Sandy Soil
			Sample ID:				
			Crop:				
			Client:	Clay	Clay Loam	Loam	Loamy Sand
	Parameter		Method reference	Indicative guidelines - refer to Notes 6 and 8			
	pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.5	6.5	6.3	6.3
	Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.200	0.150	0.120	0.100
	Exchangeable Calcium	(cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	15.6	10.8	5.0	1.9
		(kg/ha)		7000	4816	2240	840
		(mg/kg)		3125	2150	1000	375
	Exchangeable Magnesium	(cmol$_+$/kg)		2.4	1.7	1.2	0.60
		(kg/ha)		650	448	325	168
		(mg/kg)		290	200	145	75
	Exchangeable Potassium	(cmol$_+$/kg)		0.60	0.50	0.40	0.30
		(kg/ha)		526	426	336	224
		(mg/kg)		235	190	150	100
	Exchangeable Sodium	(cmol$_+$/kg)		0.3	0.26	0.22	0.11
		(kg/ha)		155	134	113	57
		(mg/kg)		69	60	51	25
	Exchangeable Aluminium	(cmol$_+$/kg)	**Inhouse S37 (KCl)	0.6	0.5	0.4	0.2
		(kg/ha)		121	101	73	30
		(mg/kg)		54	45	32	14
	Exchangeable Hydrogen	(cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.6	0.5	0.4	0.2
		(kg/ha)		13	11	8	3
		(mg/kg)		6	5	4	2
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	20.1	14.3	7.8	3.3
	Calcium (%)		**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	77.6	75.7	65.6	57.4
	Magnesium (%)			11.9	11.9	15.7	18.1
	Potassium (%)			3.0	3.5	5.2	9.1
	Sodium - ESP (%)			1.5	1.8	2.9	3.3
	Aluminium (%)			6.0	7.1	10.5	12.1
	Hydrogen (%)						
	Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol$_+$/kg)	6.5	6.4	4.2	3.2
	Emerson Aggregate Test (EAT)		**AS1289.3.8.1-2017	Class 3–8			
	Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	..			
	Mottles Munsell Colour			..			
	Degree of Mottling (%)			..			

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AGRICULTURAL SOIL ANALYSIS REPORT

19 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5557

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 EIS

Not Given

			Heavy Soil	Medium Soil	Light Soil	Sandy Soil
		Sample ID:				
		Crop:				
		Client:	Clay	Clay Loam	Loam	Loamy Sand
	Parameter	Method reference	Indicative guidelines - refer to Notes 6 and 8			
Notes:						

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil res
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimat
13. ** NATA accreditation does not cover the performance of this service.
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Quality Checked: Kris Saville
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
		Sample ID:	35	35	35	35	36	36
		Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10	10 - 20
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	**Method reference**	N5559/1	N5559/2	N5559/3	N5559/4	N5559/5	N5559/6
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.38	5.47	5.20	5.33	5.66	6.00
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.134	0.024	0.023	0.024	0.082	0.040
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.8	1.6	1.9	0.74	3.6	3.4
	Exchangeable Calcium (kg/ha)		2,602	730	862	333	1,632	1,542
	Exchangeable Calcium (mg/kg)		1,162	326	385	149	728	688
	Exchangeable Magnesium (cmol$_+$/kg)		2.9	1.2	2.9	6.2	2.8	3.7
	Exchangeable Magnesium (kg/ha)		796	331	779	1,700	770	1,020
	Exchangeable Magnesium (mg/kg)		355	148	348	759	344	456
	Exchangeable Potassium (cmol$_+$/kg)		0.52	0.23	0.28	0.26	1.1	1.1
	Exchangeable Potassium (kg/ha)		455	206	247	227	939	999
	Exchangeable Potassium (mg/kg)		203	92	110	101	419	446
	Exchangeable Sodium (cmol$_+$/kg)		0.13	0.08	0.13	0.40	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		65	39	66	207	<33	<33
	Exchangeable Sodium (mg/kg)		29	18	29	92	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.17	0.69	2.6	5.3	0.23	0.07
	Exchangeable Aluminium (kg/ha)		35	140	520	1,070	47	13
	Exchangeable Aluminium (mg/kg)		16	62	232	478	21	5.9
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.23	0.19	0.28	<0.01	<0.01	0.08
	Exchangeable Hydrogen (kg/ha)		5.2	4.2	6.2	<1	<1	1.7
	Exchangeable Hydrogen (mg/kg)		2.3	1.9	2.8	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	9.8	4.0	8.0	13	7.8	8.5
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	59	40	24	5.7	46	40
	Magnesium (%)		30	30	36	48	36	44
	Potassium (%)		5.3	5.8	3.5	2.0	14	13
	Sodium - ESP (%)		1.3	1.9	1.6	3.1	0.64	0.42
	Aluminium (%)		1.8	17	32	41	3.0	0.77
	Hydrogen (%)		2.4	4.7	3.5	0.00	0.00	0.90
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.0	1.3	0.67	0.12	1.3	0.92
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 3/4 Dark Yellowish Brown	7.5YR 5/6 Strong Brown	5YR 5/6 Yellowish Red	5YR 4/6 Yellowish Red	7.5YR 4/3 Brown	7.5YR 5/6 Strong Brown
	Mottles Munsell Colour		..	..	5YR 5/8	10YR 7/1, 10YR 3/2	..	..
			..	..	Yellowish Red	Light Gray, Very Dark Grayish Brown	..	..
	Degree of Mottling (%)		..	..	40	20, 20	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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17. This report was issued on 6/01/2023.

Quality Checked: Kris Saville
Agricultural Co-Ordinator KS

NATA WORLD RECOGNISED ACCREDITATION
Accreditation No. 14960
Accredited for compliance with ISO/IEC 17025 - Testing

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12
		Sample ID:	36	36	37	37	37	37
		Depth:	30 - 40	45 - 55	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/7	N5559/8	N5559/9	N5559/10	N5559/11	N5559/12
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.63	5.70	5.82	5.54	5.45	5.13
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.039	0.046	0.064	0.027	0.028	0.033
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.7	3.2	1.8	1.3	1.6	2.7
	Exchangeable Calcium (kg/ha)		1,643	1,435	808	578	696	1,212
	Exchangeable Calcium (mg/kg)		734	641	361	258	311	541
	Exchangeable Magnesium (cmol$_+$/kg)		7.9	8.1	1.3	0.39	0.48	3.5
	Exchangeable Magnesium (kg/ha)		2,151	2,211	346	106	129	961
	Exchangeable Magnesium (mg/kg)		960	987	155	48	58	429
	Exchangeable Potassium (cmol$_+$/kg)		0.91	0.71	1.4	0.61	0.42	0.39
	Exchangeable Potassium (kg/ha)		794	623	1,257	530	364	342
	Exchangeable Potassium (mg/kg)		355	278	561	237	163	153
	Exchangeable Sodium (cmol$_+$/kg)		0.23	0.37	<0.065	<0.065	<0.065	0.09
	Exchangeable Sodium (kg/ha)		120	192	<33	<33	<33	46
	Exchangeable Sodium (mg/kg)		54	86	<15	<15	<15	21
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.41	0.30	0.08	0.50	0.37	0.73
	Exchangeable Aluminium (kg/ha)		83	60	16	100	74	148
	Exchangeable Aluminium (mg/kg)		37	27	7.3	45	33	66
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.14	0.15	0.08	0.16	0.18	0.28
	Exchangeable Hydrogen (kg/ha)		3.0	3.4	1.8	3.7	4.0	6.2
	Exchangeable Hydrogen (mg/kg)		1.4	1.5	<1	1.6	1.8	2.8
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	13	13	4.7	3.0	3.0	7.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	28	25	38	43	51	35
	Magnesium (%)		60	63	27	13	16	46
	Potassium (%)		6.8	5.5	31	20	14	5.1
	Sodium - ESP (%)		1.8	2.9	0.51	0.90	1.3	1.2
	Aluminium (%)		3.1	2.3	1.7	17	12	9.5
	Hydrogen (%)		1.0	1.2	1.7	5.5	5.9	3.6
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.46	0.39	1.4	3.3	3.3	0.76
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 4/6 Yellowish Red	7.5YR 4/6 Strong Brown	10YR 4/4 Dark Yellowish Brown	7.5YR 5/6 Strong Brown	7.5YR 6/6 Reddish Yellow	7.5YR 5/8 Strong Brown
	Mottles Munsell Colour		.. ..	7.5YR 3/2 Dark Brown	.. ..	.. ..	.. ..	7.5YR 8/3 Pink
	Degree of Mottling (%)		..	2	..	..	..	15

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
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10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 13	Sample 14	Sample 15	Sample 16	Sample 17	Sample 18
		Sample ID:	38	38	38	38	39	39
		Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/13	N5559/14	N5559/15	N5559/16	N5559/17	N5559/18
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.28	8.18	8.08	9.00	5.69	6.53
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.064	0.066	0.057	0.238	0.153	0.033
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.0	11	11	13	6.6	4.8
	Exchangeable Calcium (kg/ha)		3,164	4,889	4,779	6,034	2,947	2,137
	Exchangeable Calcium (mg/kg)		1,413	2,183	2,134	2,694	1,316	954
	Exchangeable Magnesium (cmol$_+$/kg)		4.1	13	13	14	3.8	4.8
	Exchangeable Magnesium (kg/ha)		1,109	3,564	3,426	3,739	1,047	1,295
	Exchangeable Magnesium (mg/kg)		495	1,591	1,529	1,669	468	578
	Exchangeable Potassium (cmol$_+$/kg)		1.6	0.77	0.89	0.82	1.2	0.92
	Exchangeable Potassium (kg/ha)		1,371	673	783	719	1,022	803
	Exchangeable Potassium (mg/kg)		612	301	349	321	456	358
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.53	0.47	1.6	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	275	241	833	<33	<33
	Exchangeable Sodium (mg/kg)		<15	123	108	372	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.02	0.01	0.02	0.02	0.03
	Exchangeable Aluminium (kg/ha)		6.2	3.1	2.7	4.3	4.3	5.7
	Exchangeable Aluminium (mg/kg)		2.8	1.4	1.2	1.9	1.9	2.5
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.05	<0.01	<0.01	<0.01	0.13	<0.01
	Exchangeable Hydrogen (kg/ha)		1.2	<1	<1	<1	3.0	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	1.3	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	13	25	25	30	12	11
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	55	43	43	45	56	45
	Magnesium (%)		32	52	51	46	33	45
	Potassium (%)		12	3.0	3.6	2.8	9.9	8.7
	Sodium - ESP (%)		0.40	2.1	1.9	5.5	0.39	0.43
	Aluminium (%)		0.24	0.06	0.05	0.07	0.18	0.27
	Hydrogen (%)		0.43	0.00	0.00	0.00	1.1	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	0.83	0.85	0.98	1.7	1.0
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 4/2 Brown	7.5YR 3/1 Very Dark Gray	10YR 3/1 Very Dark Gray	7.5YR 4/3 Brown	10YR 4/3 Brown	7.5YR 4/6 Strong Brown
	Mottles Munsell Colour		.. ..	.. ..	10YR 7/3 Very Pale Brown	7.5YR 4/1 Dark Gray	.. ..	10YR 8/3 Very Pale Brown
	Degree of Mottling (%)		..	..	10	7	..	15

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
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3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 19	Sample 20	Sample 21	Sample 22	Sample 23	Sample 24
		Sample ID:	39	39	40	40	40	40
		Depth:	40 - 50	55 - 65	0 - 10	10 - 20	30 - 40	45 - 55
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/19	N5559/20	N5559/21	N5559/22	N5559/23	N5559/24
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.70	7.61	5.88	6.22	6.32	6.17
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.039	0.037	0.073	0.030	0.030	0.024
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.9	5.2	8.7	4.0	6.5	7.6
	Exchangeable Calcium (kg/ha)		3,115	2,351	3,892	1,809	2,907	3,422
	Exchangeable Calcium (mg/kg)		1,391	1,050	1,738	807	1,298	1,528
	Exchangeable Magnesium (cmol$_+$/kg)		7.3	9.1	2.0	0.94	5.3	6.5
	Exchangeable Magnesium (kg/ha)		1,986	2,475	533	256	1,451	1,761
	Exchangeable Magnesium (mg/kg)		887	1,105	238	114	648	786
	Exchangeable Potassium (cmol$_+$/kg)		0.70	0.60	1.3	0.49	0.85	0.98
	Exchangeable Potassium (kg/ha)		612	523	1,120	425	742	855
	Exchangeable Potassium (mg/kg)		273	233	500	190	331	382
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.22	<0.065	<0.065	<0.065	0.08
	Exchangeable Sodium (kg/ha)		<33	114	<33	<33	<33	40
	Exchangeable Sodium (mg/kg)		<15	51	<15	<15	<15	18
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.02	0.02	0.03	0.04
	Exchangeable Aluminium (kg/ha)		3.9	3.6	3.6	3.7	6.9	8.8
	Exchangeable Aluminium (mg/kg)		1.8	1.6	1.6	1.6	3.1	4.0
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.08	<0.01	0.05	0.07
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.8	<1	1.1	1.5
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	15	15	12	5.5	13	15
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	46	35	72	73	51	50
	Magnesium (%)		49	60	16	17	42	42
	Potassium (%)		4.7	3.9	11	8.8	6.6	6.4
	Sodium - ESP (%)		0.28	1.5	0.21	0.24	0.46	0.51
	Aluminium (%)		0.13	0.12	0.15	0.33	0.27	0.29
	Hydrogen (%)		0.00	0.00	0.68	0.08	0.39	0.45
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.95	0.58	4.4	4.3	1.2	1.2
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/8 Yellowish Brown	10YR 5/8 Yellowish Brown	7.5YR 3/2 Dark Brown	10YR 6/4 Light Yellowish Brown	5YR 4/6 Yellowish Red	2.5YR 4/1 Dark Reddish Gray
	Mottles Munsell Colour		10YR 2/2 Very Dark Brown	.. ..	.. ..	.. ..	.. ..	2.5YR 4/8 Red
	Degree of Mottling (%)		5	..	..	..	..	40

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

Parameter		Method reference	Sample 25	Sample 26	Sample 27	Sample 28	Sample 29	Sample 30
Sample ID:			41	41	41	42	42	42
Depth:			0 - 10	20 - 30	40 - 50	0 - 10	10 - 20	30 - 40
Client:			Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			N5559/25	N5559/26	N5559/27	N5559/28	N5559/29	N5559/30
pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.87	6.89	7.65	5.72	6.35	5.69
Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.045	0.033	0.040	0.197	0.041	0.058
Exchangeable Calcium	(cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.3	5.6	7.8	8.2	2.8	4.2
	(kg/ha)		1,496	2,533	3,516	3,700	1,276	1,898
	(mg/kg)		668	1,131	1,570	1,652	569	847
Exchangeable Magnesium	(cmol$_+$/kg)		1.9	8.4	7.0	3.0	0.70	8.4
	(kg/ha)		527	2,274	1,895	806	191	2,276
	(mg/kg)		235	1,015	846	360	85	1,016
Exchangeable Potassium	(cmol$_+$/kg)		0.96	0.56	0.78	1.2	0.68	0.59
	(kg/ha)		843	491	681	1,084	592	519
	(mg/kg)		376	219	304	484	264	231
Exchangeable Sodium	(cmol$_+$/kg)		<0.065	0.10	<0.065	0.15	<0.065	0.53
	(kg/ha)		<33	50	<33	78	<33	273
	(mg/kg)		<15	22	<15	35	<15	122
Exchangeable Aluminium	(cmol$_+$/kg)	**Inhouse S37 (KCl)	0.04	0.03	0.01	0.02	0.01	0.22
	(kg/ha)		8.2	5.3	2.8	5.0	2.9	44
	(mg/kg)		3.7	2.4	1.3	2.2	1.3	19
Exchangeable Hydrogen	(cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.08	<0.01	<0.01	0.10	<0.01	0.14
	(kg/ha)		1.9	<1	<1	2.1	<1	3.2
	(mg/kg)		<1	<1	<1	<1	<1	1.4
Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	6.4	15	16	13	4.3	14
Calcium (%)		**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	52	38	50	65	66	30
Magnesium (%)			30	57	45	23	16	59
Potassium (%)			15	3.8	5.0	9.7	16	4.2
Sodium - ESP (%)			0.20	0.66	0.36	1.2	1.1	3.8
Aluminium (%)			0.64	0.18	0.09	0.19	0.34	1.5
Hydrogen (%)			1.3	0.00	0.00	0.75	0.00	1.0
Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	0.68	1.1	2.8	4.0	0.51
Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	10YR 5/4 Yellowish Brown	2.5YR 5/8 Red	7.5YR 5/6 Strong Brown	10YR 4/3 Brown	10YR 7/2 Light Gray	10YR 6/4 Light Yellowish Brown
Mottles Munsell Colour			.. ..	2.5YR 3/1 Dark Reddish Gray	.. ..	.. ..	.. ..	7.5YR 4/6 Strong Brown
Degree of Mottling (%)			..	5	..	..	..	50

Notes:

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3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 31	Sample 32	Sample 33	Sample 34	Sample 35	Sample 36
		Sample ID:	42	43	43	43	43	44
		Depth:	65 - 75	0 - 10	10 - 20	20 - 30	40 - 50	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/31	N5559/32	N5559/33	N5559/34	N5559/35	N5559/36
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.12	5.68	6.11	7.82	7.75	5.96
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.305	0.116	0.031	0.040	0.034	0.044
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	8.1	4.8	3.5	6.4	7.1	1.8
	Exchangeable Calcium (kg/ha)		3,655	2,135	1,566	2,891	3,176	801
	Exchangeable Calcium (mg/kg)		1,632	953	699	1,291	1,418	357
	Exchangeable Magnesium (cmol$_+$/kg)		13	2.3	1.0	4.6	5.2	0.99
	Exchangeable Magnesium (kg/ha)		3,433	625	278	1,256	1,411	271
	Exchangeable Magnesium (mg/kg)		1,533	279	124	561	630	121
	Exchangeable Potassium (cmol$_+$/kg)		0.71	0.93	0.76	0.69	0.65	1.1
	Exchangeable Potassium (kg/ha)		624	815	663	606	570	940
	Exchangeable Potassium (mg/kg)		278	364	296	271	254	419
	Exchangeable Sodium (cmol$_+$/kg)		2.3	<0.065	<0.065	0.09	0.08	<0.065
	Exchangeable Sodium (kg/ha)		1,166	<33	<33	47	43	<33
	Exchangeable Sodium (mg/kg)		521	<15	<15	21	19	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.03	<0.01	0.01	0.09
	Exchangeable Aluminium (kg/ha)		3.7	4.7	5.6	1.6	2.5	19
	Exchangeable Aluminium (mg/kg)		1.7	2.1	2.5	<1	1.1	8.5
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.12	0.07	<0.01	<0.01	0.06
	Exchangeable Hydrogen (kg/ha)		<1	2.6	1.5	<1	<1	1.3
	Exchangeable Hydrogen (mg/kg)		<1	1.2	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	24	8.2	5.4	12	13	4.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	34	58	65	54	54	44
	Magnesium (%)		53	28	19	39	40	25
	Potassium (%)		3.0	11	14	5.8	5.0	26
	Sodium - ESP (%)		9.5	0.78	0.19	0.76	0.64	1.3
	Aluminium (%)		0.08	0.29	0.52	0.07	0.09	2.3
	Hydrogen (%)		0.00	1.4	1.2	0.00	0.00	1.4
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.65	2.1	3.4	1.4	1.4	1.8
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/4 Light Yellowish Brown	7.5YR 4/4 Brown	7.5YR 5/6 Strong Brown	5YR 5/8 Yellowish Red	5YR 4/6 Yellowish Red	7.5YR 4/4 Brown
	Mottles Munsell Colour		10YR 5/8, 10YR 2/1 Yellowish Brown, Black	.. ..	.. ..	10YR 6/3 Pale Brown	10YR 8/1 White	.. ..
	Degree of Mottling (%)		30, 5	..	..	5	5	..

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 37	Sample 38	Sample 39	Sample 40	Sample 41	Sample 42
		Sample ID:	44	44	44	45	45	45
		Depth:	20 - 30	40 - 50	65 - 75	0 - 10	25 - 35	45 - 55
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/37	N5559/38	N5559/39	N5559/40	N5559/41	N5559/42
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.83	7.65	8.31	6.40	5.45	5.69
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.028	0.034	0.076	0.056	0.016	0.043
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.2	7.3	5.6	0.91	0.49	2.5
	Exchangeable Calcium (kg/ha)		2,347	3,281	2,508	408	222	1,125
	Exchangeable Calcium (mg/kg)		1,048	1,465	1,120	182	99	502
	Exchangeable Magnesium (cmol$_+$/kg)		3.1	3.2	4.3	1.0	0.63	7.6
	Exchangeable Magnesium (kg/ha)		837	860	1,183	277	172	2,067
	Exchangeable Magnesium (mg/kg)		374	384	528	123	77	923
	Exchangeable Potassium (cmol$_+$/kg)		1.2	0.75	0.77	1.9	0.45	0.63
	Exchangeable Potassium (kg/ha)		1,070	653	672	1,647	393	552
	Exchangeable Potassium (mg/kg)		478	292	300	735	175	246
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	0.19	<0.065	<0.065	0.28
	Exchangeable Sodium (kg/ha)		<33	<33	97	<33	<33	147
	Exchangeable Sodium (mg/kg)		<15	<15	43	<15	<15	66
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	<0.01	<0.01	0.05	0.42	0.14
	Exchangeable Aluminium (kg/ha)		2.5	1.4	1.2	11	84	28
	Exchangeable Aluminium (mg/kg)		1.1	<1	<1	4.8	38	13
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.09	0.17	0.11
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	2.1	3.8	2.5
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	1.7	1.1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	9.6	11	11	4.0	2.2	11
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	55	65	51	23	23	22
	Magnesium (%)		32	28	40	26	29	67
	Potassium (%)		13	6.6	7.0	47	21	5.6
	Sodium - ESP (%)		0.43	0.38	1.7	0.32	1.0	2.5
	Aluminium (%)		0.13	0.06	0.05	1.3	19	1.2
	Hydrogen (%)		0.00	0.00	0.00	2.3	7.8	1.0
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	2.3	1.3	0.89	0.78	0.33
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 3/6 Dark Red	2.5YR 4/6 Red	2.5YR 4/6 Red	10YR 4/4 Dark Yellowish Red	10YR 6/6 Brownish Yellow	10YR 6/6 Brownish Yellow
	Mottles Munsell Colour		2.5YR 2.5/1 Reddish Black	.. ..	10YR 6/10 Brownish Yellow	.. ..	.. ..	2.5YR 4/6 Red
	Degree of Mottling (%)		1	..	20	..	..	25

Notes:

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ABN: 41 995 651 524

AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 43	Sample 44	Sample 45	Sample 46	Sample 47	Sample 48
		Sample ID:	45	46	46	46	46	47
		Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/43	N5559/44	N5559/45	N5559/46	N5559/47	N5559/48
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.16	5.70	5.82	6.25	7.87	5.72
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.076	0.033	0.021	0.076	0.244	0.142
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	0.77	3.1	2.5	3.0	3.3	4.6
	Exchangeable Calcium (kg/ha)		345	1,373	1,103	1,345	1,464	2,082
	Exchangeable Calcium (mg/kg)		154	613	492	600	654	929
	Exchangeable Magnesium (cmol$_+$/kg)		10	1.6	4.8	8.2	11	1.6
	Exchangeable Magnesium (kg/ha)		2,765	445	1,308	2,240	2,903	447
	Exchangeable Magnesium (mg/kg)		1,235	199	584	1,000	1,296	200
	Exchangeable Potassium (cmol$_+$/kg)		0.33	0.86	0.42	0.38	0.58	0.73
	Exchangeable Potassium (kg/ha)		290	756	368	336	505	637
	Exchangeable Potassium (mg/kg)		129	338	164	150	225	284
	Exchangeable Sodium (cmol$_+$/kg)		0.76	<0.065	0.19	0.60	1.3	<0.065
	Exchangeable Sodium (kg/ha)		394	<33	99	307	644	<33
	Exchangeable Sodium (mg/kg)		176	<15	44	137	288	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.05	0.08	0.21	0.09	0.08	0.05
	Exchangeable Aluminium (kg/ha)		10	16	42	18	16	11
	Exchangeable Aluminium (mg/kg)		4.5	7.0	19	8.2	6.9	4.8
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.09	0.07	0.09	<0.01	<0.01	0.02
	Exchangeable Hydrogen (kg/ha)		2.0	1.5	2.0	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	12	5.7	8.2	12	16	7.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	6.3	53	30	24	21	65
	Magnesium (%)		84	29	59	67	67	23
	Potassium (%)		2.7	15	5.1	3.1	3.6	10
	Sodium - ESP (%)		6.3	0.48	2.4	4.9	7.9	0.84
	Aluminium (%)		0.41	1.4	2.6	0.74	0.49	0.74
	Hydrogen (%)		0.74	1.2	1.1	0.00	0.00	0.23
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.08	1.9	0.51	0.36	0.31	2.8
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/6 Yellowish Brown	7.5YR 3/4 Dark Brown	5YR 4/6 Yellowish Red	5YR 4/4 Reddish Brown	10YR 5/4 Yellowish Brown	7.5YR 3/4 Dark Brown
	Mottles Munsell Colour		10YR 6/6 Brownish Yellow	.. ..	.. ..	5YR 4/6 Yellowish Red	5YR 4/6 Yellowish Red	.. ..
	Degree of Mottling (%)		40	..	..	50	25	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
15. This report is not to be reproduced except in full. Results only relate to the item tested.
16. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditio
17. This report was issued on 6/01/2023.

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Agricultural Co-Ordinator

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 49	Sample 50	Sample 51	Sample 52	Sample 53	Sample 54
		Sample ID:	47	47	47	48	48	48
		Depth:	20 - 30	40 - 50	65 - 75	0 - 10	15 - 25	30 - 40
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/49	N5559/50	N5559/51	N5559/52	N5559/53	N5559/54
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.34	7.71	8.07	5.30	5.99	6.39
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.017	0.040	0.048	0.140	0.020	0.054
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.5	7.9	7.7	3.5	0.76	1.7
	Exchangeable Calcium (kg/ha)		1,142	3,527	3,471	1,572	343	774
	Exchangeable Calcium (mg/kg)		510	1,575	1,550	702	153	346
	Exchangeable Magnesium (cmol$_+$/kg)		0.60	4.4	4.7	2.4	0.84	7.2
	Exchangeable Magnesium (kg/ha)		163	1,191	1,268	645	228	1,966
	Exchangeable Magnesium (mg/kg)		73	531	566	288	102	878
	Exchangeable Potassium (cmol$_+$/kg)		0.32	0.57	0.57	0.51	0.26	0.35
	Exchangeable Potassium (kg/ha)		281	497	503	443	227	305
	Exchangeable Potassium (mg/kg)		125	222	225	198	101	136
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	0.07	0.11	0.10	0.75
	Exchangeable Sodium (kg/ha)		<33	<33	35	57	50	386
	Exchangeable Sodium (mg/kg)		<15	<15	16	26	22	172
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.06	0.08	0.06	0.13	0.12	0.13
	Exchangeable Aluminium (kg/ha)		11	16	11	25	24	26
	Exchangeable Aluminium (mg/kg)		5.0	7.1	5.0	11	11	12
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.10	0.04	0.02
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	2.3	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	1.0	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	3.5	13	13	6.7	2.1	10
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	72	61	59	52	36	17
	Magnesium (%)		17	34	36	35	40	71
	Potassium (%)		9.0	4.4	4.4	7.5	12	3.4
	Sodium - ESP (%)		0.63	0.50	0.52	1.7	4.6	7.3
	Aluminium (%)		1.6	0.61	0.43	1.9	5.6	1.3
	Hydrogen (%)		0.00	0.00	0.00	1.6	2.0	0.16
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	4.2	1.8	1.7	1.5	0.91	0.24
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/4 Yellowish Brown	10YR 6/6 Brownish Yellow	10YR 5/4 Yellowish Brown	7.5YR 3/2 Dark Brown	10YR 6/3 Pale Brown	10YR 6/4 Light Yellowish Brown
	Mottles Munsell Colour		..	2.5YR 4/8, 10YR 3/2	10YR 7/1, 5YR 5/8	..	..	10YR 5/8
			..	Red, Very Dark Grayish Brown	Light Gray, Yellowish Red	..	..	Yellowish Brown
	Degree of Mottling (%)		..	25, 1	2, 15	..	..	15

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 55	Sample 56	Sample 57	Sample 58	Sample 59	Sample 60
		Sample ID:	48	49	49	49	49	50
		Depth:	65 - 75	0 - 10	10 - 20	30 - 40	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/55	N5559/56	N5559/57	N5559/58	N5559/59	N5559/60
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.44	5.55	5.65	5.86	6.12	5.68
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.372	0.037	0.015	0.096	0.231	0.035
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.2	1.4	0.65	0.88	0.21	2.8
	Exchangeable Calcium (kg/ha)		531	615	291	397	93	1,254
	Exchangeable Calcium (mg/kg)		237	275	130	177	42	560
	Exchangeable Magnesium (cmol$_+$/kg)		7.5	1.5	1.5	11	9.5	1.4
	Exchangeable Magnesium (kg/ha)		2,055	402	402	3,088	2,598	381
	Exchangeable Magnesium (mg/kg)		917	179	179	1,379	1,160	170
	Exchangeable Potassium (cmol$_+$/kg)		0.16	0.55	0.28	0.55	0.40	0.64
	Exchangeable Potassium (kg/ha)		136	484	242	484	352	565
	Exchangeable Potassium (mg/kg)		61	216	108	216	157	252
	Exchangeable Sodium (cmol$_+$/kg)		2.8	0.09	<0.065	0.55	1.2	<0.065
	Exchangeable Sodium (kg/ha)		1,434	46	<33	282	613	<33
	Exchangeable Sodium (mg/kg)		640	21	<15	126	274	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.06	0.36	0.32	0.23	0.08	0.12
	Exchangeable Aluminium (kg/ha)		11	73	65	46	15	24
	Exchangeable Aluminium (mg/kg)		5.1	33	29	21	6.8	11
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.07	0.09	0.01	<0.01	0.01
	Exchangeable Hydrogen (kg/ha)		<1	1.5	2.0	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	12	3.9	2.9	14	11	5.0
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	10	35	23	6.5	1.8	55
	Magnesium (%)		64	38	52	84	84	28
	Potassium (%)		1.3	14	9.7	4.1	3.5	13
	Sodium - ESP (%)		24	2.3	1.8	4.0	10	1.3
	Aluminium (%)		0.49	9.2	11	1.7	0.66	2.4
	Hydrogen (%)		0.00	1.7	3.1	0.08	0.00	0.26
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.16	0.93	0.44	0.08	0.02	2.0
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 4/6 Dark Yellowish Brown	7.5YR 6/2 Pinkish Gray	7.5YR 7/2 Pinkish Gray	2.5YR 5/6 Red	10YR 6/4 Light Yellowish Brown	10YR 5/2 Grayish Brown
	Mottles Munsell Colour		10YR 3/1, 5YR 5/8 Very Dark Gray, Yellowish Red	.. ..	.. ..	.. ..	7.5YR 7/1, 5YR 5/6 Light Gray, Yellowish Red	.. ..
	Degree of Mottling (%)		15, 2	..	..	..	50, 40	..

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 61	Sample 62	Sample 63	Sample 64	Sample 65	Sample 66
		Sample ID:	50	50	50	50	51	51
		Depth:	20 - 30	40 - 50	65 - 75	90 - 100	0 - 10	15 - 25
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/61	N5559/62	N5559/63	N5559/64	N5559/65	N5559/66
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.97	6.09	5.88	6.91	5.87	6.56
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.019	0.016	0.019	0.023	0.122	0.033
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.9	2.4	2.5	1.6	6.2	1.2
	Exchangeable Calcium (kg/ha)		1,314	1,069	1,110	727	2,772	517
	Exchangeable Calcium (mg/kg)		587	477	496	324	1,238	231
	Exchangeable Magnesium (cmol$_+$/kg)		1.1	0.91	1.3	0.67	2.7	0.45
	Exchangeable Magnesium (kg/ha)		303	249	343	182	730	123
	Exchangeable Magnesium (mg/kg)		135	111	153	81	326	55
	Exchangeable Potassium (cmol$_+$/kg)		0.19	0.14	0.17	0.13	1.4	0.21
	Exchangeable Potassium (kg/ha)		167	119	148	112	1,192	188
	Exchangeable Potassium (mg/kg)		74	53	66	50	532	84
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	<0.065	<0.065	0.07	<0.065
	Exchangeable Sodium (kg/ha)		<33	<33	<33	<33	35	<33
	Exchangeable Sodium (mg/kg)		<15	<15	<15	<15	15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.05	0.05	0.07	0.06	0.07	0.04
	Exchangeable Aluminium (kg/ha)		9.7	10.0	14	11	14	8.8
	Exchangeable Aluminium (mg/kg)		4.3	4.5	6.0	5.1	6.1	3.9
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.01	0.04	<0.01	0.03	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	4.3	3.5	4.1	2.5	10	1.9
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	68	67	61	65	60	60
	Magnesium (%)		26	26	31	27	26	24
	Potassium (%)		4.4	3.8	4.1	5.1	13	11
	Sodium - ESP (%)		1.0	1.1	1.6	0.91	0.65	2.4
	Aluminium (%)		1.1	1.4	1.6	2.3	0.65	2.3
	Hydrogen (%)		0.16	0.31	0.95	0.00	0.24	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.6	2.6	2.0	2.4	2.3	2.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 4/3 Brown	7.5YR 6/3 Light Brown	7.5YR 4/3 Brown	10YR 3/2 Very Dark Grayish Brown	10YR 4/3 Brown	10YR 7/1 Light Gray
	Mottles Munsell Colour		..	..	..	7.5YR 6/3	..	..
			..	..	..	Light Brown	..	..
	Degree of Mottling (%)		..	..	..	30	..	..

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 67	Sample 68	Sample 69	Sample 70	Sample 71	Sample 72
		Sample ID:	51	51	52	52	52	52
		Depth:	30 - 40	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/67	N5559/68	N5559/69	N5559/70	N5559/71	N5559/72
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.16	7.67	6.00	6.25	7.22	8.54
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.068	0.117	0.060	0.017	0.025	0.056
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.8	7.0	5.6	5.3	4.1	4.8
	Exchangeable Calcium (kg/ha)		2,616	3,164	2,521	2,362	1,840	2,152
	Exchangeable Calcium (mg/kg)		1,168	1,413	1,126	1,055	821	961
	Exchangeable Magnesium (cmol$_+$/kg)		8.3	9.1	1.7	0.93	0.84	0.91
	Exchangeable Magnesium (kg/ha)		2,263	2,478	457	253	228	248
	Exchangeable Magnesium (mg/kg)		1,010	1,106	204	113	102	111
	Exchangeable Potassium (cmol$_+$/kg)		0.39	0.32	0.99	0.26	0.21	0.17
	Exchangeable Potassium (kg/ha)		345	281	866	230	186	145
	Exchangeable Potassium (mg/kg)		154	125	386	103	83	65
	Exchangeable Sodium (cmol$_+$/kg)		0.78	1.1	0.09	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		404	591	44	<33	<33	<33
	Exchangeable Sodium (mg/kg)		180	264	20	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.09	0.05	0.06	0.04	0.04	0.04
	Exchangeable Aluminium (kg/ha)		19	9.3	12	8.3	7.8	7.7
	Exchangeable Aluminium (mg/kg)		8.3	4.2	5.4	3.7	3.5	3.4
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.04	<0.01	0.02	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	15	18	8.4	6.5	5.2	6.0
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	38	40	66	81	78	81
	Magnesium (%)		54	52	20	14	16	15
	Potassium (%)		2.6	1.8	12	4.0	4.1	2.8
	Sodium - ESP (%)		5.1	6.5	1.0	0.55	0.90	0.73
	Aluminium (%)		0.60	0.26	0.71	0.63	0.74	0.64
	Hydrogen (%)		0.23	0.00	0.23	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.70	0.77	3.3	5.7	4.9	5.3
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 4/3 Brown	7.5YR 3/2 Dark Brown	7.5YR 4/2 Brown	7.5YR 4/2 Brown	7.5YR 4/4 Brown	7.5YR 4/3 Brown
	Mottles Munsell Colour		10YR 4/1 Dark Gray	.. ..	.. ..	.. ..	.. ..	2.5YR 5/8 Red
	Degree of Mottling (%)		7	..	..	..	..	2

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 73	Sample 74	Sample 75	Sample 76	Sample 77	Sample 78
		Sample ID:	52	53	53	53	54	54
		Depth:	90 - 100	0 - 10	20 - 30	40 - 50	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/73	N5559/74	N5559/75	N5559/76	N5559/77	N5559/78
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.77	6.00	5.87	5.82	5.44	5.73
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.022	0.127	0.023	0.021	0.030	0.013
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.2	6.7	5.1	4.4	1.7	0.87
	Exchangeable Calcium (kg/ha)		2,804	3,023	2,291	1,989	749	391
	Exchangeable Calcium (mg/kg)		1,252	1,350	1,023	888	334	175
	Exchangeable Magnesium (cmol$_+$/kg)		1.4	2.0	4.3	4.1	0.68	0.38
	Exchangeable Magnesium (kg/ha)		388	545	1,168	1,104	184	102
	Exchangeable Magnesium (mg/kg)		173	243	521	493	82	46
	Exchangeable Potassium (cmol$_+$/kg)		0.34	1.0	0.89	0.73	0.41	0.27
	Exchangeable Potassium (kg/ha)		301	897	784	636	359	238
	Exchangeable Potassium (mg/kg)		134	400	350	284	160	106
	Exchangeable Sodium (cmol$_+$/kg)		0.07	<0.065	<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		35	<33	<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		16	<15	<15	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.06	0.26	0.41	0.27	0.17
	Exchangeable Aluminium (kg/ha)		6.7	13	52	82	53	35
	Exchangeable Aluminium (mg/kg)		3.0	5.6	23	37	24	16
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.03	0.08	0.06	0.12	0.07
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.8	1.3	2.6	1.6
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	1.2	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	8.1	9.9	11	9.7	3.2	1.8
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	77	68	48	46	53	49
	Magnesium (%)		18	20	40	42	21	21
	Potassium (%)		4.2	10	8.4	7.5	13	15
	Sodium - ESP (%)		0.83	0.39	0.55	0.55	0.53	0.51
	Aluminium (%)		0.41	0.63	2.4	4.2	8.4	9.8
	Hydrogen (%)		0.00	0.29	0.75	0.58	3.7	4.1
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	4.4	3.4	1.2	1.1	2.5	2.3
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 2.5/3 Very Dark Brown	10YR 5/3 Brown	5YR 4/6 Yellowish Red	5YR 5/8 Yellowish Red	10YR 4/3 Dark Yellowish Brown	10YR 7/2 Light Gray
	Mottles Munsell Colour		.. ..	.. ..	10YR 6/6 Brownish Yellow	10YR 6/6 Brownish Yellow	.. ..	.. ..
	Degree of Mottling (%)		..	..	20	15	..	..

Notes:

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2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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Agricultural Co-Ordinator KS

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 79	Sample 80	Sample 81	Sample 82	Sample 83	Sample 84
		Sample ID:	54	54	55	55	55	55
		Depth:	40 - 50	60 - 70	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/79	N5559/80	N5559/81	N5559/82	N5559/83	N5559/84
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.15	5.56	5.53	6.71	6.97	7.42
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.019	0.033	0.048	0.017	0.014	0.021
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	0.81	0.72	4.0	7.8	3.2	4.7
	Exchangeable Calcium (kg/ha)		363	325	1,800	3,507	1,428	2,090
	Exchangeable Calcium (mg/kg)		162	145	804	1,566	637	933
	Exchangeable Magnesium (cmol$_+$/kg)		0.33	3.7	0.98	1.7	0.64	1.9
	Exchangeable Magnesium (kg/ha)		90	1,006	267	450	175	509
	Exchangeable Magnesium (mg/kg)		40	449	119	201	78	227
	Exchangeable Potassium (cmol$_+$/kg)		0.39	0.18	0.60	1.2	0.37	0.37
	Exchangeable Potassium (kg/ha)		344	155	529	1,060	320	322
	Exchangeable Potassium (mg/kg)		154	69	236	473	143	144
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.21	<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	108	<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		<15	48	<15	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.05	0.23	0.07	0.03	0.05	0.05
	Exchangeable Aluminium (kg/ha)		10	47	14	6.8	11	9.6
	Exchangeable Aluminium (mg/kg)		4.6	21	6.4	3.0	4.8	4.3
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.15	0.05	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	3.4	1.1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	1.5	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	1.6	5.2	5.7	11	4.3	7.0
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	50	14	70	73	75	67
	Magnesium (%)		20	71	17	15	15	27
	Potassium (%)		24	3.4	11	11	8.6	5.3
	Sodium - ESP (%)		1.6	4.0	0.37	0.34	0.33	0.66
	Aluminium (%)		3.2	4.5	1.2	0.31	1.3	0.68
	Hydrogen (%)		0.52	2.9	0.89	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.4	0.20	4.1	4.7	4.9	2.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 8/1 White	10YR 6/4 Light Yellowish Brown	10YR 5/4 Yellowish Brown	5YR 5/4 Reddish Brown	7.5YR 5/6 Strong Brown	2.5YR 5/6 Red
	Mottles Munsell Colour		.. ..	5YR 4/6 Yellowish Red	.. ..	.. ..	.. ..	7.5YR 6/3 Light Brown
	Degree of Mottling (%)		..	40	..	..	..	20

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 85	Sample 86	Sample 87	Sample 88	Sample 89	Sample 90
		Sample ID:	55	56	56	56	56	57
		Depth:	85 - 95	0 - 10	15 - 25	35 - 45	50 - 60	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/85	N5559/86	N5559/87	N5559/88	N5559/89	N5559/90
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.68	5.90	6.35	6.54	5.92	5.88
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.028	0.100	0.014	0.013	0.012	0.083
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.8	4.8	2.6	2.3	1.3	7.5
	Exchangeable Calcium (kg/ha)		3,057	2,175	1,153	1,043	581	3,373
	Exchangeable Calcium (mg/kg)		1,365	971	515	466	259	1,506
	Exchangeable Magnesium (cmol$_+$/kg)		3.9	2.4	0.78	1.5	2.4	3.7
	Exchangeable Magnesium (kg/ha)		1,073	658	212	402	650	1,020
	Exchangeable Magnesium (mg/kg)		479	294	94	179	290	456
	Exchangeable Potassium (cmol$_+$/kg)		0.55	1.1	0.40	0.18	<0.12	1.5
	Exchangeable Potassium (kg/ha)		483	988	350	161	<112	1,320
	Exchangeable Potassium (mg/kg)		216	441	156	72	<50	589
	Exchangeable Sodium (cmol$_+$/kg)		0.07	<0.065	<0.065	<0.065	0.10	<0.065
	Exchangeable Sodium (kg/ha)		37	<33	<33	<33	52	<33
	Exchangeable Sodium (mg/kg)		17	<15	<15	<15	23	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.06	0.05	0.05	0.04	0.15	0.07
	Exchangeable Aluminium (kg/ha)		12	11	10	7.3	31	14
	Exchangeable Aluminium (mg/kg)		5.2	4.9	4.5	3.3	14	6.2
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.04	0.01	<0.01	0.05	0.04
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	1.2	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	8.5	3.8	4.1	4.1	13
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	60	57	67	57	32	58
	Magnesium (%)		34	28	20	36	58	29
	Potassium (%)		4.8	13	10	4.5	2.5	12
	Sodium - ESP (%)		0.63	0.40	0.40	1.1	2.5	0.38
	Aluminium (%)		0.51	0.64	1.3	0.89	3.7	0.53
	Hydrogen (%)		0.00	0.49	0.27	0.00	1.3	0.27
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	2.0	3.3	1.6	0.54	2.0
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 4/6 Yellowish Red	10YR 5/4 Yellowish Brown	7.5YR 6/3 Light Brown	10YR 7/3 Very Pale Brown	10YR 5/6 Yellowish Brown	10YR 5/4 Yellowish Brown
	Mottles Munsell Colour		10YR 6/3 Pale Brown	..	..	..	..	..
	Degree of Mottling (%)		15	..	..	..	..	..

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 91	Sample 92	Sample 93	Sample 94	Sample 95	Sample 96
		Sample ID:	57	57	57	58	58	58
		Depth:	15 - 25	35 - 45	60 - 70	0 - 10	15 - 25	30 - 40
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/91	N5559/92	N5559/93	N5559/94	N5559/95	N5559/96
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.33	5.68	4.97	6.23	6.45	7.97
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.050	0.262	0.542	0.097	0.053	0.126
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.3	2.3	1.5	7.3	5.3	8.9
	Exchangeable Calcium (kg/ha)		2,362	1,025	684	3,276	2,362	3,982
	Exchangeable Calcium (mg/kg)		1,055	458	305	1,463	1,055	1,778
	Exchangeable Magnesium (cmol$_+$/kg)		13	15	16	3.5	2.2	8.0
	Exchangeable Magnesium (kg/ha)		3,421	4,039	4,229	956	592	2,167
	Exchangeable Magnesium (mg/kg)		1,527	1,803	1,888	427	264	967
	Exchangeable Potassium (cmol$_+$/kg)		0.79	0.66	0.58	1.2	0.88	1.4
	Exchangeable Potassium (kg/ha)		693	576	508	1,092	768	1,207
	Exchangeable Potassium (mg/kg)		310	257	227	487	343	539
	Exchangeable Sodium (cmol$_+$/kg)		0.61	1.4	1.9	0.14	0.09	0.50
	Exchangeable Sodium (kg/ha)		317	741	965	73	47	257
	Exchangeable Sodium (mg/kg)		141	331	431	33	21	115
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.08	0.24	0.62	0.09	0.06	0.06
	Exchangeable Aluminium (kg/ha)		16	48	125	19	11	13
	Exchangeable Aluminium (mg/kg)		7.1	21	56	8.3	5.1	5.7
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.09	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	2.1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	19	19	20	12	8.5	19
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	27	12	7.5	59	62	47
	Magnesium (%)		65	76	77	29	26	42
	Potassium (%)		4.1	3.4	2.9	10	10	7.3
	Sodium - ESP (%)		3.2	7.4	9.3	1.2	1.1	2.7
	Aluminium (%)		0.41	1.2	3.1	0.75	0.67	0.33
	Hydrogen (%)		0.00	0.00	0.45	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.42	0.15	0.10	2.1	2.4	1.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 2/2 Very Dark Brown	2.5YR 2.5/4 Dark Reddish Brown	5YR 4/6 Yellowish Red	10YR5/3 Brown	10YR 6/3 Pale Brown	7.5YR 4/4 Brown
	Mottles Munsell Colour		.. ..	.. ..	5YR 6/3 Light Reddish Brown	.. ..	.. ..	7.5YR 3/1 Very Dark Grey
	Degree of Mottling (%)		..	..	30	..	..	1

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 97	Sample 98	Sample 99	Sample 100	Sample 101	Sample 102
		Sample ID:	58	59	59	59	60	60
		Depth:	65 - 75	0 - 10	15 - 25	40 - 50	0 - 8	42217
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/97	N5559/98	N5559/99	N5559/100	N5559/101	N5559/102
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.31	5.73	6.93	8.31	5.91	6.18
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.381	0.070	0.038	0.138	0.052	0.023
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.5	4.2	7.5	11	3.0	1.9
	Exchangeable Calcium (kg/ha)		3,384	1,888	3,368	4,999	1,337	843
	Exchangeable Calcium (mg/kg)		1,511	843	1,504	2,232	597	376
	Exchangeable Magnesium (cmol+/kg)		9.5	2.2	5.6	9.3	2.4	2.4
	Exchangeable Magnesium (kg/ha)		2,593	594	1,521	2,519	651	657
	Exchangeable Magnesium (mg/kg)		1,158	265	679	1,125	291	293
	Exchangeable Potassium (cmol+/kg)		1.2	0.96	1.3	0.60	0.96	0.59
	Exchangeable Potassium (kg/ha)		1,043	844	1,162	521	843	515
	Exchangeable Potassium (mg/kg)		466	377	519	233	376	230
	Exchangeable Sodium (cmol+/kg)		1.6	<0.065	0.08	0.20	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		845	<33	39	103	<33	<33
	Exchangeable Sodium (mg/kg)		377	<15	17	46	<15	<15
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.26	0.04	0.07	0.07	0.06	0.06
	Exchangeable Aluminium (kg/ha)		53	7.7	14	15	12	13
	Exchangeable Aluminium (mg/kg)		24	3.4	6.1	6.6	5.4	5.8
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.08	<0.01	<0.01	0.06	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	1.8	<1	<1	1.4	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	20	7.5	15	21	6.5	5.0
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	37	56	52	52	46	38
	Magnesium (%)		47	29	38	44	37	49
	Potassium (%)		5.9	13	9.1	2.8	15	12
	Sodium - ESP (%)		8.1	0.70	0.52	0.94	0.67	0.42
	Aluminium (%)		1.3	0.51	0.46	0.34	0.92	1.3
	Hydrogen (%)		0.00	1.1	0.00	0.00	0.95	0.11
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.79	1.9	1.3	1.2	1.2	0.78
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 3/2 Dark Brown	10YR 4/4 Dark Yellowish Brown	5YR 4/6 Yellowish Red	10YR 5/6 Yellowish Brown	10YR 4/4 Dark Yellowish Brown	7.5YR 5/6 Strong Brown
	Mottles Munsell Colour		10YR 5/6 Yellowish Brown	.. ..	.. ..	7.5YR 4/4 Brown	.. ..	.. ..
	Degree of Mottling (%)		30	..	..	25	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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Agricultural Co-Ordinator KS

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 103	Sample 104	Sample 105	Sample 106	Sample 107	Sample 108
		Sample ID:	60	61	61	61	62	62
		Depth:	20 - 30	0 - 10	15 - 25	50 - 60	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/103	N5559/104	N5559/105	N5559/106	N5559/107	N5559/108
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.89	6.19	7.49	7.93	6.18	6.82
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.025	0.050	0.040	0.046	0.169	0.045
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.7	6.0	5.7	5.5	7.8	6.3
	Exchangeable Calcium (kg/ha)		1,233	2,692	2,573	2,463	3,505	2,833
	Exchangeable Calcium (mg/kg)		551	1,202	1,149	1,100	1,565	1,265
	Exchangeable Magnesium (cmol$_+$/kg)		8.4	3.4	8.8	9.9	4.5	2.1
	Exchangeable Magnesium (kg/ha)		2,274	918	2,383	2,692	1,212	561
	Exchangeable Magnesium (mg/kg)		1,015	410	1,064	1,202	541	250
	Exchangeable Potassium (cmol$_+$/kg)		1.2	0.91	0.94	0.72	0.60	0.63
	Exchangeable Potassium (kg/ha)		1,013	801	826	631	522	553
	Exchangeable Potassium (mg/kg)		452	357	369	282	233	247
	Exchangeable Sodium (cmol$_+$/kg)		0.09	<0.065	0.15	0.30	0.28	0.08
	Exchangeable Sodium (kg/ha)		48	<33	78	156	143	43
	Exchangeable Sodium (mg/kg)		21	<15	35	70	64	19
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.30	0.07	0.06	0.05	0.05	0.05
	Exchangeable Aluminium (kg/ha)		61	14	11	10	11	9.3
	Exchangeable Aluminium (mg/kg)		27	6.1	5.1	4.7	4.9	4.2
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.07	<0.01	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		1.6	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	13	10	16	16	13	9.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	22	58	37	33	59	69
	Magnesium (%)		66	32	56	60	34	23
	Potassium (%)		9.1	8.8	6.0	4.4	4.5	6.9
	Sodium - ESP (%)		0.73	0.36	0.96	1.8	2.1	0.91
	Aluminium (%)		2.4	0.66	0.36	0.32	0.42	0.51
	Hydrogen (%)		0.55	0.00	0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.33	1.8	0.65	0.55	1.8	3.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 4/6 Yellowish Red	7.5YR 5/4 Brown	7.5 YR 4/6 Strong Brown	7.5YR 4/6 Strong Brown	7.5YR 2.5/2 Very Dark Brown	10YR 2/2 Very Dark Brown
	Mottles Munsell Colour		..	..	..	7.5YR 3/2 7.5YR 2.5/1 Dark Brown, Black	..	..
	Degree of Mottling (%)		..	..	..	10	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 109	Sample 110	Sample 111	Sample 112	Sample 113	Sample 114
		Sample ID:	62	62	63	63	64	64
		Depth:	40 - 50	65 - 75	0 - 5	10 - 20	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/109	N5559/110	N5559/111	N5559/112	N5559/113	N5559/114
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.88	8.27	6.71	6.50	5.49	5.75
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.065	0.168	0.183	0.031	0.155	0.014
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.3	3.9	12	5.6	1.3	1.5
	Exchangeable Calcium (kg/ha)		1,917	1,753	5,391	2,508	603	662
	Exchangeable Calcium (mg/kg)		856	783	2,407	1,120	269	296
	Exchangeable Magnesium (cmol$_+$/kg)		2.6	2.7	4.1	2.4	0.83	0.56
	Exchangeable Magnesium (kg/ha)		697	743	1,115	659	225	152
	Exchangeable Magnesium (mg/kg)		311	331	498	294	101	68
	Exchangeable Potassium (cmol$_+$/kg)		0.44	0.28	1.1	0.54	1.2	0.45
	Exchangeable Potassium (kg/ha)		382	245	976	474	1,011	397
	Exchangeable Potassium (mg/kg)		170	109	436	212	451	177
	Exchangeable Sodium (cmol$_+$/kg)		0.20	0.42	<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		105	219	<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		47	98	<15	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.04	0.04	0.08	0.06	0.22	0.14
	Exchangeable Aluminium (kg/ha)		8.6	8.5	15	12	44	29
	Exchangeable Aluminium (mg/kg)		3.8	3.8	6.8	5.4	20	13
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	0.06	0.03
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	1.4	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	7.5	7.4	17	8.6	3.7	2.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	57	53	69	65	37	54
	Magnesium (%)		34	37	24	28	23	20
	Potassium (%)		5.8	3.8	6.4	6.3	31	17
	Sodium - ESP (%)		2.7	5.8	0.34	0.40	1.7	2.3
	Aluminium (%)		0.56	0.57	0.44	0.70	6.0	5.3
	Hydrogen (%)		0.00	0.00	0.00	0.00	1.6	1.1
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	1.4	2.9	2.3	1.6	2.6
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	N5559/109 10YR 3/3	N5559/110 10YR 3/2	N5559/111 7.5YR 5/4	N5559/112 7.5YR 4/6	N5559/113 10YR 5/4	N5559/114 7.5YR 6/6
	Mottles Munsell Colour		Dark Brown	Very Dark Reddish Brown	Brown	Strong Brown	Yellowish Brown	Reddish Yellow
			..	..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..	..

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 115	Sample 116	Sample 117	Sample 118	Sample 119	Sample 120
		Sample ID:	64	64	65	65	65	65
		Depth:	40 - 50	65 - 75	0 - 10	20 - 30	35 - 45	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/115	N5559/116	N5559/117	N5559/118	N5559/119	N5559/120
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.29	6.22	5.72	5.71	6.86	5.93
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.033	0.056	0.045	0.020	0.022	0.036
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.8	2.7	2.0	1.7	6.0	4.4
	Exchangeable Calcium (kg/ha)		2,160	1,215	914	748	2,705	1,964
	Exchangeable Calcium (mg/kg)		964	542	408	334	1,208	877
	Exchangeable Magnesium (cmol$_+$/kg)		5.1	6.0	0.88	0.50	4.0	5.0
	Exchangeable Magnesium (kg/ha)		1,392	1,645	240	135	1,078	1,352
	Exchangeable Magnesium (mg/kg)		621	734	107	60	481	603
	Exchangeable Potassium (cmol$_+$/kg)		0.60	0.43	1.0	0.73	0.44	0.31
	Exchangeable Potassium (kg/ha)		525	378	880	642	388	268
	Exchangeable Potassium (mg/kg)		234	169	393	287	173	120
	Exchangeable Sodium (cmol$_+$/kg)		0.31	0.50	<0.065	<0.065	0.11	0.23
	Exchangeable Sodium (kg/ha)		162	257	<33	<33	59	117
	Exchangeable Sodium (mg/kg)		72	115	<15	<15	26	52
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.05	0.06	0.16	0.24	0.04	0.06
	Exchangeable Aluminium (kg/ha)		9.5	12	32	48	9.0	12
	Exchangeable Aluminium (mg/kg)		4.2	5.4	14	22	4.0	5.6
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.03	0.04	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	1.0	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	9.7	4.2	3.2	11	9.9
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	44	28	49	52	57	44
	Magnesium (%)		47	62	21	15	37	50
	Potassium (%)		5.5	4.4	24	23	4.2	3.1
	Sodium - ESP (%)		2.9	5.1	1.2	1.2	1.1	2.3
	Aluminium (%)		0.43	0.61	3.8	7.5	0.42	0.62
	Hydrogen (%)		0.00	0.00	0.68	1.4	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.94	0.45	2.3	3.4	1.5	0.88
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	N5559/115	N5559/116	N5559/117	N5559/118	N5559/119	N5559/120
			7.5YR 5/8	10YR 6/6	7.5YR 3/4	7.5YR 4/6	5YR 4/6	2.5YR 4/8
	Mottles Munsell Colour		Strong Brown	Brownish Yellow	Dark Brown	Strong Brown	Yellowish Red	Red
			10YR 5/6	7.5YR 5/8	..	..	10YR 6/6	10YR 5/6
	Degree of Mottling (%)		Yellowish Brown	Yellowish Red	..	..	Brownish Yellow	Yellowish Brown

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 121	Sample 122	Sample 123	Sample 124	Sample 125	Sample 126
		Sample ID:	66	66	66	66	67	67
		Depth:	0 - 10	10 - 20	20 - 30	50 - 60	0 - 10	15 - 25
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/121	N5559/122	N5559/123	N5559/124	N5559/125	N5559/126
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.88	6.29	6.19	8.66	5.63	5.78
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.100	0.029	0.129	0.203	0.122	0.019
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.5	1.7	3.9	7.4	3.7	1.1
	Exchangeable Calcium (kg/ha)		2,037	755	1,735	3,314	1,680	474
	Exchangeable Calcium (mg/kg)		909	337	774	1,480	750	212
	Exchangeable Magnesium (cmol+/kg)		2.1	0.87	6.2	7.6	2.6	0.70
	Exchangeable Magnesium (kg/ha)		579	236	1,688	2,063	710	191
	Exchangeable Magnesium (mg/kg)		258	105	754	921	317	85
	Exchangeable Potassium (cmol+/kg)		1.3	1.1	0.84	0.63	1.1	0.64
	Exchangeable Potassium (kg/ha)		1,161	1,006	735	555	924	558
	Exchangeable Potassium (mg/kg)		518	449	328	248	412	249
	Exchangeable Sodium (cmol+/kg)		<0.065	<0.065	0.64	1.3	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	<33	329	653	<33	<33
	Exchangeable Sodium (mg/kg)		<15	<15	147	292	<15	<15
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.04	0.05	0.04	0.03	0.04	0.30
	Exchangeable Aluminium (kg/ha)		9.0	9.3	8.5	5.5	7.7	60
	Exchangeable Aluminium (mg/kg)		4.0	4.2	3.8	2.5	3.5	27
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.09	0.03	<0.01	<0.01	0.10	0.05
	Exchangeable Hydrogen (kg/ha)		1.9	<1	<1	<1	2.2	1.1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	8.2	3.8	12	17	7.6	2.8
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	55	44	33	44	49	38
	Magnesium (%)		26	23	54	45	34	25
	Potassium (%)		16	30	7.2	3.7	14	23
	Sodium - ESP (%)		0.76	1.2	5.5	7.5	0.69	1.2
	Aluminium (%)		0.55	1.2	0.36	0.16	0.51	11
	Hydrogen (%)		1.0	0.91	0.00	0.00	1.3	1.8
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.1	1.9	0.62	0.97	1.4	1.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	N5559/121	N5559/122	N5559/123	N5559/124	N5559/125	N5559/126
			10YR 5/3	10YR 6/4	2.5YR 4/8	10YR 5/6	10YR 4/3	7.5YR 6/6
	Mottles Munsell Colour		Brown	Light Brownish Yellow	Red	Yellowish Brown	Brown	Reddish Yellow
			..	..	10YR 6/6	10YR 2/2 10YR 5/8	..	..
	Degree of Mottling (%)		..	..	Brownish Yellow	Very Dark Greyish Brown, Yellowish Brown	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 127	Sample 128	Sample 129	Sample 130	Sample 131	Sample 132
		Sample ID:	67	67	68	68	68	68
		Depth:	30 - 40	65 - 75	0 - 10	15 - 25	30 - 40	50 - 60
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/127	N5559/128	N5559/129	N5559/130	N5559/131	N5559/132
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.81	6.16	5.61	5.94	7.53	7.85
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.036	0.043	0.138	0.024	0.038	0.038
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.2	1.8	4.3	2.3	7.6	5.5
	Exchangeable Calcium (kg/ha)		989	810	1,909	1,024	3,406	2,470
	Exchangeable Calcium (mg/kg)		442	362	852	457	1,521	1,103
	Exchangeable Magnesium (cmol$_+$/kg)		6.6	6.9	2.7	0.93	7.4	6.5
	Exchangeable Magnesium (kg/ha)		1,809	1,870	725	252	2,003	1,760
	Exchangeable Magnesium (mg/kg)		808	835	324	113	894	786
	Exchangeable Potassium (cmol$_+$/kg)		0.67	0.53	1.0	0.48	0.51	0.34
	Exchangeable Potassium (kg/ha)		583	463	898	419	449	301
	Exchangeable Potassium (mg/kg)		260	207	401	187	200	134
	Exchangeable Sodium (cmol$_+$/kg)		0.36	0.56	0.09	<0.065	0.12	0.14
	Exchangeable Sodium (kg/ha)		184	287	47	<33	64	70
	Exchangeable Sodium (mg/kg)		82	128	21	<15	29	31
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.50	0.15	0.06	0.07	0.04	0.03
	Exchangeable Aluminium (kg/ha)		100	31	13	15	7.2	6.7
	Exchangeable Aluminium (mg/kg)		45	14	5.7	6.5	3.2	3.0
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.05	0.01	0.07	0.04	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		1.2	<1	1.7	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	10	9.9	8.2	3.9	16	12
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	21	18	52	59	49	44
	Magnesium (%)		64	69	33	24	47	52
	Potassium (%)		6.4	5.3	13	12	3.3	2.8
	Sodium - ESP (%)		3.4	5.6	1.1	1.4	0.80	1.1
	Aluminium (%)		4.8	1.5	0.78	1.9	0.23	0.27
	Hydrogen (%)		0.51	0.15	0.91	1.0	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.33	0.26	1.6	2.5	1.0	0.85
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 4/8 Red	5YR 5/8 Yellowish Red	10YR 5/3 Brown	10YR 7/1 Light Grey	10YR 5/4 Yellowish Brown	10YR 5/3 Brown
	Mottles Munsell Colour		10YR 8/2 Very Pale Brown	10YR 8/3 Very Pale Brown	.. ..	.. ..	10YR 3/1 Very Dark Brown	10YR 6/8 7.5YR 2.5/1 Brownish Yellow, Black
	Degree of Mottling (%)		20	40	..	..	30	50

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 133	Sample 134	Sample 135	Sample 136	Sample 137	Sample 138
		Sample ID:	69	69	69	69	70	70
		Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/133	N5559/134	N5559/135	N5559/136	N5559/137	N5559/138
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.89	6.62	7.69	8.47	5.58	7.65
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.169	0.032	0.036	0.119	0.060	0.108
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.7	3.4	5.8	7.4	6.2	8.5
	Exchangeable Calcium (kg/ha)		2,553	1,515	2,600	3,305	2,788	3,827
	Exchangeable Calcium (mg/kg)		1,140	677	1,161	1,476	1,245	1,709
	Exchangeable Magnesium (cmol$_+$/kg)		3.6	1.5	6.4	7.1	4.9	13
	Exchangeable Magnesium (kg/ha)		976	401	1,742	1,921	1,335	3,544
	Exchangeable Magnesium (mg/kg)		436	179	778	858	596	1,582
	Exchangeable Potassium (cmol$_+$/kg)		1.8	0.97	0.85	0.65	1.4	2.2
	Exchangeable Potassium (kg/ha)		1,569	849	742	565	1,256	1,893
	Exchangeable Potassium (mg/kg)		700	379	331	252	561	845
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	<0.065	0.18	0.14	<0.065	0.34
	Exchangeable Sodium (kg/ha)		<33	<33	90	73	<33	176
	Exchangeable Sodium (mg/kg)		<15	<15	40	33	<15	79
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.04	0.03	0.04	0.14	0.05
	Exchangeable Aluminium (kg/ha)		6.2	7.6	5.8	9.0	28	9.4
	Exchangeable Aluminium (mg/kg)		2.7	3.4	2.6	4.0	13	4.2
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.03	<0.01	<0.01	<0.01	0.04	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	5.9	13	15	13	24
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	51	57	44	48	49	35
	Magnesium (%)		32	25	48	46	38	54
	Potassium (%)		16	16	6.4	4.2	11	9.0
	Sodium - ESP (%)		0.16	0.38	1.3	0.93	0.47	1.4
	Aluminium (%)		0.27	0.64	0.22	0.29	1.1	0.19
	Hydrogen (%)		0.28	0.00	0.00	0.00	0.33	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.6	2.3	0.90	1.0	1.3	0.65
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 3/3 Dark Brown	7.5YR 4/4 Brown	2.5YR 4/8 Red	10YR 5/6 Yellowish Brown	7.5YR 4/3 Brown	2.5YR 3/6 Dark Red
	Mottles Munsell Colour		.. ..	.. ..	10YR 7/3 Very Pale Brown	10YR 2/1 5YR 5/8 Black, Yellowish Red	.. ..	2.5YR 2.5/4 Dark Reddish Brown
	Degree of Mottling (%)		..	..	20	20	..	10

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 139	Sample 140	Sample 141	Sample 142	Sample 143	Sample 144
		Sample ID:	70	70	71	71	71	72
		Depth:	40 - 50	65 - 75	0 - 10	10 - 20	35 - 45	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/139	N5559/140	N5559/141	N5559/142	N5559/143	N5559/144
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.61	8.92	5.86	5.73	6.63	5.62
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.435	0.608	0.039	0.016	0.036	0.034
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	11	11	2.6	1.4	6.6	2.0
	Exchangeable Calcium (kg/ha)		4,867	4,943	1,168	643	2,985	896
	Exchangeable Calcium (mg/kg)		2,173	2,207	521	287	1,333	400
	Exchangeable Magnesium (cmol+/kg)		20	19	2.0	1.2	7.7	0.96
	Exchangeable Magnesium (kg/ha)		5,439	5,244	531	328	2,095	260
	Exchangeable Magnesium (mg/kg)		2,428	2,341	237	147	935	116
	Exchangeable Potassium (cmol+/kg)		1.4	0.70	0.50	0.21	0.53	0.37
	Exchangeable Potassium (kg/ha)		1,248	617	435	182	463	323
	Exchangeable Potassium (mg/kg)		557	276	194	81	207	144
	Exchangeable Sodium (cmol+/kg)		1.5	2.1	<0.065	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		765	1,075	<33	<33	<33	<33
	Exchangeable Sodium (mg/kg)		341	480	<15	<15	<15	<15
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.05	0.05	0.04	0.25	0.04	0.26
	Exchangeable Aluminium (kg/ha)		9.4	11	8.9	50	8.7	53
	Exchangeable Aluminium (mg/kg)		4.2	4.9	4.0	22	3.9	23
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.09	0.11	<0.01	0.07
	Exchangeable Hydrogen (kg/ha)		<1	<1	2.0	2.4	<1	1.6
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	1.1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	34	33	5.2	3.2	15	3.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	32	33	50	44	44	54
	Magnesium (%)		59	58	37	37	51	26
	Potassium (%)		4.2	2.1	9.5	6.4	3.5	9.9
	Sodium - ESP (%)		4.4	6.3	0.54	0.73	0.43	1.4
	Aluminium (%)		0.14	0.16	0.85	7.6	0.29	7.0
	Hydrogen (%)		0.00	0.00	1.7	3.3	0.00	2.0
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.54	0.57	1.3	1.2	0.86	2.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 4/8 Red	10YR 5/4 Yellowish Brown	10YR 6/3 Pale Brown	7.5YR 7/2 Pinkish Grey	5YR 5/8 Yellowish Red	7.5YR 8/1 White
	Mottles Munsell Colour		.. ..	10YR 8/3 10YR 6/6 Very Pale Brown, Brownish Yellow	.. ..	.. ..	7.5YR 6/2 Pinkish Grey	.. ..
	Degree of Mottling (%)		..	20	..	..	7	..

Notes:

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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 145	Sample 146	Sample 147	Sample 148	Sample 149	Sample 150
		Sample ID:	72	72	72	73	73	73
		Depth:	20 - 30	40 - 50	65 - 75	0 - 10	25 - 35	45 - 55
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/145	N5559/146	N5559/147	N5559/148	N5559/149	N5559/150
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.23	6.31	6.58	5.59	6.29	7.33
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.020	0.054	0.079	0.040	0.014	0.042
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.1	1.5	0.79	1.8	1.6	3.4
	Exchangeable Calcium (kg/ha)		516	694	356	806	724	1,532
	Exchangeable Calcium (mg/kg)		230	310	159	360	323	684
	Exchangeable Magnesium (cmol$_+$/kg)		1.4	8.3	7.2	0.77	0.52	4.3
	Exchangeable Magnesium (kg/ha)		387	2,272	1,951	209	141	1,159
	Exchangeable Magnesium (mg/kg)		173	1,014	871	93	63	517
	Exchangeable Potassium (cmol$_+$/kg)		0.17	0.47	0.35	0.44	0.24	0.30
	Exchangeable Potassium (kg/ha)		149	410	309	381	209	265
	Exchangeable Potassium (mg/kg)		67	183	138	170	93	118
	Exchangeable Sodium (cmol$_+$/kg)		0.12	0.52	0.67	<0.065	<0.065	0.10
	Exchangeable Sodium (kg/ha)		63	266	347	<33	<33	51
	Exchangeable Sodium (mg/kg)		28	119	155	<15	<15	23
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.08	0.08	0.05	0.15	0.06	0.04
	Exchangeable Aluminium (kg/ha)		16	17	10	30	11	8.6
	Exchangeable Aluminium (mg/kg)		7.0	7.6	4.5	14	5.0	3.8
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.03	0.05	<0.01	0.05	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	1.1	<1	1.2	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	3.0	11	9.0	3.2	2.5	8.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	39	14	8.8	56	66	42
	Magnesium (%)		48	76	79	24	21	52
	Potassium (%)		5.7	4.2	3.9	14	9.7	3.7
	Sodium - ESP (%)		4.1	4.7	7.4	0.58	0.88	1.2
	Aluminium (%)		2.6	0.76	0.56	4.7	2.3	0.53
	Hydrogen (%)		1.2	0.44	0.00	1.6	0.26	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.81	0.19	0.11	2.3	3.1	0.80
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 7/3 Very Pale Brown	5YR 7/1 Light Gray	10YR 6/4 Light Yellowish Brown	7.5YR 4/3 Brown	10YR 6/3 Pale Brown	10YR 6/4 Light Yellowish Brown
	Mottles Munsell Colour		.. ..	5YR 5/8 Yellowish Red	2.5YR 4/8, WHITE 8/N Red, White	.. ..	.. ..	2.5YR 4/8, 10YR 7/1 Red, Light Gray
	Degree of Mottling (%)		..	40	50, 30	..	..	20, 10

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 151	Sample 152	Sample 153	Sample 154	Sample 155	Sample 156
		Sample ID:	73	74	74	74	74	75
		Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/151	N5559/152	N5559/153	N5559/154	N5559/155	N5559/156
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.50	5.93	7.16	7.85	7.95	5.57
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.028	0.044	0.042	0.068	0.073	0.039
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.4	2.0	2.5	2.6	5.9	2.0
	Exchangeable Calcium (kg/ha)		632	897	1,117	1,179	2,631	911
	Exchangeable Calcium (mg/kg)		282	401	499	527	1,175	407
	Exchangeable Magnesium (cmol$_+$/kg)		4.1	0.76	0.68	0.95	4.1	0.86
	Exchangeable Magnesium (kg/ha)		1,123	208	186	258	1,109	235
	Exchangeable Magnesium (mg/kg)		501	93	83	115	495	105
	Exchangeable Potassium (cmol$_+$/kg)		0.23	0.65	0.35	0.29	0.55	0.52
	Exchangeable Potassium (kg/ha)		205	571	309	255	478	454
	Exchangeable Potassium (mg/kg)		91	255	138	114	214	202
	Exchangeable Sodium (cmol$_+$/kg)		0.19	<0.065	0.19	0.20	0.49	0.10
	Exchangeable Sodium (kg/ha)		95	<33	99	105	251	53
	Exchangeable Sodium (mg/kg)		43	<15	44	47	112	24
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	1.0	0.09	0.03	0.04	0.04	0.16
	Exchangeable Aluminium (kg/ha)		203	17	6.7	7.1	8.3	33
	Exchangeable Aluminium (mg/kg)		91	7.7	3.0	3.2	3.7	15
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.25	0.02	<0.01	<0.01	<0.01	0.04
	Exchangeable Hydrogen (kg/ha)		5.5	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		2.5	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	7.2	3.6	3.8	4.1	11	3.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	20	56	66	64	53	55
	Magnesium (%)		57	21	18	23	37	23
	Potassium (%)		3.2	18	9.4	7.1	5.0	14
	Sodium - ESP (%)		2.6	1.3	5.1	5.0	4.4	2.8
	Aluminium (%)		14	2.4	0.89	0.86	0.37	4.4
	Hydrogen (%)		3.4	0.52	0.00	0.00	0.00	1.1
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.34	2.6	3.6	2.8	1.4	2.4
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/4 Light Yellowish Brown	10YR 4/3 Brown	7.5YR 5/4 Brown	7.5YR 5/4 Brown	10YR 5/4 Yellowish Brown	5YR 7/1 Light Gray
	Mottles Munsell Colour		5YR 4/6, WHITE 9.5/N Yellowish Red, White	.. ..	.. ..	10YR 3/1 Very Dark Gray	2.5YR 4/8, 10YR 7/1 Red, Light Gray	.. ..
	Degree of Mottling (%)		30, 10	..	..	5	50, 7	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 157	Sample 158	Sample 159	Sample 160	Sample 161	Sample 162
		Sample ID:	75	75	75	76	76	76
		Depth:	25 - 35	40 - 50	65 - 75	0 - 10	10 - 20	30 - 40
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/157	N5559/158	N5559/159	N5559/160	N5559/161	N5559/162
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.78	7.21	7.72	6.40	6.25	6.85
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.035	0.042	0.057	0.152	0.035	0.034
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.7	3.9	3.6	4.9	3.2	9.2
	Exchangeable Calcium (kg/ha)		2,125	1,759	1,636	2,187	1,450	4,128
	Exchangeable Calcium (mg/kg)		948	785	730	976	647	1,843
	Exchangeable Magnesium (cmol$_+$/kg)		4.5	5.0	4.7	1.6	0.84	3.0
	Exchangeable Magnesium (kg/ha)		1,231	1,374	1,292	440	230	817
	Exchangeable Magnesium (mg/kg)		550	613	577	196	103	365
	Exchangeable Potassium (cmol$_+$/kg)		0.70	0.59	0.46	0.73	0.58	0.56
	Exchangeable Potassium (kg/ha)		617	513	405	640	505	487
	Exchangeable Potassium (mg/kg)		275	229	181	286	225	218
	Exchangeable Sodium (cmol$_+$/kg)		0.20	0.38	0.41	0.22	0.12	0.08
	Exchangeable Sodium (kg/ha)		102	194	209	115	60	40
	Exchangeable Sodium (mg/kg)		45	87	93	51	27	18
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.06	0.06	0.02	0.01	0.02	0.01
	Exchangeable Aluminium (kg/ha)		11	11	3.9	2.9	3.1	2.7
	Exchangeable Aluminium (mg/kg)		5.1	5.0	1.7	1.3	1.4	1.2
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.02	0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	10	10.0	9.3	7.5	4.8	13
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	46	39	39	65	67	72
	Magnesium (%)		44	51	51	22	18	23
	Potassium (%)		6.9	5.9	5.0	9.8	12	4.3
	Sodium - ESP (%)		1.9	3.8	4.4	3.0	2.4	0.61
	Aluminium (%)		0.56	0.55	0.21	0.19	0.32	0.10
	Hydrogen (%)		0.00	0.00	0.00	0.21	0.31	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.0	0.78	0.77	3.0	3.8	3.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/4 Yellowish Brown	10YR 6/4 Light Yellowish Brown	10YR 6/4 Light Yellowish Brown	10YR 4/4 Dark Yellowish Brown	10YR 5/4 Yellowish Brown	10YR 6/4 Light Yellowish Brown
	Mottles Munsell Colour		5YR 6/1, 10YR 6/6 Gray, Brownish Yellow	7.5YR 6/1, 2.5YR 4/8 Gray, Red	GLEY 1 7/N, 2.5YR 4/8 Light Gray, Red	.. ..	.. ..	10YR 4/1 Dark Gray
	Degree of Mottling (%)		5, 40	30, 50	20, 50	..	..	30

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 163	Sample 164	Sample 165	Sample 166	Sample 167	Sample 168
		Sample ID:	76	77	77	77	77	78
		Depth:	65 - 75	0 - 10	20 - 30	45 - 55	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/163	N5559/164	N5559/165	N5559/166	N5559/167	N5559/168
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.06	5.70	6.69	7.08	7.10	5.72
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.042	0.066	0.018	0.029	0.031	0.047
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	11	2.8	1.5	4.6	2.9	2.5
	Exchangeable Calcium (kg/ha)		4,869	1,260	666	2,060	1,301	1,100
	Exchangeable Calcium (mg/kg)		2,174	562	297	920	581	491
	Exchangeable Magnesium (cmol$_+$/kg)		2.4	0.66	0.44	4.4	4.0	0.61
	Exchangeable Magnesium (kg/ha)		653	179	120	1,189	1,088	165
	Exchangeable Magnesium (mg/kg)		291	80	54	531	486	74
	Exchangeable Potassium (cmol$_+$/kg)		0.33	0.43	0.18	0.27	0.23	0.35
	Exchangeable Potassium (kg/ha)		290	380	156	240	205	310
	Exchangeable Potassium (mg/kg)		130	170	69	107	92	138
	Exchangeable Sodium (cmol$_+$/kg)		0.07	0.21	0.07	0.22	0.23	0.16
	Exchangeable Sodium (kg/ha)		38	108	36	114	118	82
	Exchangeable Sodium (mg/kg)		17	48	16	51	53	37
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	0.06	0.01	0.02	0.01	0.09
	Exchangeable Aluminium (kg/ha)		2.5	12	2.7	3.0	2.7	17
	Exchangeable Aluminium (mg/kg)		1.1	5.2	1.2	1.4	1.2	7.7
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.06	<0.01	<0.01	<0.01	0.07
	Exchangeable Hydrogen (kg/ha)		<1	1.3	<1	<1	<1	1.7
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	14	4.2	2.2	9.5	7.4	3.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	79	66	68	48	39	66
	Magnesium (%)		18	16	20	46	54	16
	Potassium (%)		2.4	10	8.1	2.9	3.2	9.5
	Sodium - ESP (%)		0.54	5.0	3.2	2.3	3.1	4.3
	Aluminium (%)		0.09	1.4	0.62	0.16	0.18	2.3
	Hydrogen (%)		0.00	1.4	0.00	0.00	0.00	2.0
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	4.5	4.3	3.4	1.1	0.72	4.0
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/6 Brownish Yellow	7.5YR 4/3 Brown	7.5YR 6/3 Light Brown	10YR 6/4 Light Yellowish Brown	10YR 5/8 Yellowish Brown	10YR 4/3 Brown
	Mottles Munsell Colour		10YR 3/2 Very Dark Grayish Brown	..	..	10YR 7/1, 10YR 6/8 Light Gray, Brownish Yellow	10YR 6/1 Gray	..
	Degree of Mottling (%)		30	..	..	20, 40	30	..

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 169	Sample 170	Sample 171	Sample 172	Sample 173	Sample 174
		Sample ID:	78	78	78	79	79	79
		Depth:	15 - 25	40 - 50	70 - 75	0 - 10	20 - 30	45 - 55
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/169	N5559/170	N5559/171	N5559/172	N5559/173	N5559/174
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.10	7.19	7.00	5.84	6.69	8.23
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.019	0.021	0.039	0.041	0.033	0.076
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.3	1.8	2.8	5.5	6.3	7.1
	Exchangeable Calcium (kg/ha)		603	821	1,256	2,448	2,817	3,184
	Exchangeable Calcium (mg/kg)		269	367	561	1,093	1,258	1,422
	Exchangeable Magnesium (cmol+/kg)		0.24	0.54	6.0	2.8	4.9	9.4
	Exchangeable Magnesium (kg/ha)		64	146	1,626	770	1,339	2,568
	Exchangeable Magnesium (mg/kg)		29	65	726	344	598	1,147
	Exchangeable Potassium (cmol+/kg)		0.18	<0.12	0.44	0.67	1.2	0.49
	Exchangeable Potassium (kg/ha)		154	<112	383	588	1,010	428
	Exchangeable Potassium (mg/kg)		69	<50	171	262	451	191
	Exchangeable Sodium (cmol+/kg)		<0.065	0.07	0.50	<0.065	<0.065	0.11
	Exchangeable Sodium (kg/ha)		<33	36	257	<33	<33	55
	Exchangeable Sodium (mg/kg)		<15	16	115	<15	<15	25
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.01	0.01	0.01	0.04	0.02	<0.01
	Exchangeable Aluminium (kg/ha)		2.6	2.4	2.8	7.7	3.0	1.9
	Exchangeable Aluminium (mg/kg)		1.2	1.1	1.3	3.5	1.4	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.07	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	1.6	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	1.8	2.6	9.7	9.1	12	17
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	73	71	29	60	51	41
	Magnesium (%)		13	21	61	31	40	55
	Potassium (%)		9.6	4.5	4.5	7.4	9.3	2.9
	Sodium - ESP (%)		3.4	2.7	5.1	0.69	0.32	0.62
	Aluminium (%)		0.71	0.47	0.14	0.42	0.12	0.06
	Hydrogen (%)		0.00	0.00	0.00	0.78	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	5.7	3.4	0.47	1.9	1.3	0.75
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 6/3 Light Brown	10YR 7/3 Very Pale Brown	10YR 6/3 Pale Brown	7.5YR 4/3 Brown	5YR 4/6 Yellowish Red	7.5YR 5/6 Strong Brown
	Mottles Munsell Colour		..	..	10YR 5/8, 10YR 7/1 Yellowish Brown, Light Gray	..	..	..
	Degree of Mottling (%)		..	..	50, 40	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
15. This report is not to be reproduced except in full. Results only relate to the item tested.
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17. This report was issued on 6/01/2023.

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Agricultural Co-Ordinator

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 175	Sample 176	Sample 177	Sample 178	Sample 179	Sample 180
		Sample ID:	79	80	80	80	80	81
		Depth:	65 - 75	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/175	N5559/176	N5559/177	N5559/178	N5559/179	N5559/180
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.02	5.33	6.93	7.31	7.54	5.29
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.104	0.099	0.035	0.032	0.035	0.253
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	19	4.2	9.2	9.2	8.9	2.5
	Exchangeable Calcium (kg/ha)		8,538	1,906	4,150	4,132	3,995	1,117
	Exchangeable Calcium (mg/kg)		3,812	851	1,853	1,845	1,784	499
	Exchangeable Magnesium (cmol$_+$/kg)		11	1.3	5.3	6.7	6.9	1.3
	Exchangeable Magnesium (kg/ha)		2,982	365	1,432	1,821	1,868	356
	Exchangeable Magnesium (mg/kg)		1,331	163	639	813	834	159
	Exchangeable Potassium (cmol$_+$/kg)		0.41	0.84	0.74	0.49	0.42	0.39
	Exchangeable Potassium (kg/ha)		358	738	648	425	364	346
	Exchangeable Potassium (mg/kg)		160	330	289	190	162	154
	Exchangeable Sodium (cmol$_+$/kg)		0.11	<0.065	<0.065	0.09	0.08	0.37
	Exchangeable Sodium (kg/ha)		55	<33	<33	45	39	192
	Exchangeable Sodium (mg/kg)		25	<15	<15	20	17	86
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	0.05	0.01	0.01	0.01	0.04
	Exchangeable Aluminium (kg/ha)		2.0	10	2.3	2.3	2.0	8.2
	Exchangeable Aluminium (mg/kg)		<1	4.5	1.0	1.0	<1	3.7
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.13	<0.01	<0.01	<0.01	0.10
	Exchangeable Hydrogen (kg/ha)		<1	2.8	<1	<1	<1	2.3
	Exchangeable Hydrogen (mg/kg)		<1	1.3	<1	<1	<1	1.0
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	31	6.6	15	16	16	4.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	62	64	60	56	55	53
	Magnesium (%)		36	20	34	41	42	28
	Potassium (%)		1.3	13	4.8	2.9	2.6	8.4
	Sodium - ESP (%)		0.35	0.54	0.34	0.52	0.46	7.9
	Aluminium (%)		0.03	0.76	0.07	0.07	0.06	0.87
	Hydrogen (%)		0.00	1.9	0.00	0.00	0.00	2.2
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.7	3.2	1.8	1.4	1.3	1.9
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 7/1 Light Gray	10YR 4/4 Dark Yellowish Brown	5YR 4/6 Yellowish Red	7.5YR 4/6 Strong Brown	10YR 6/6 Brownish Yellow	5YR 3/2 Dark Reddish Brown
	Mottles Munsell Colour		10YR 5/8 Yellowish Brown	..	..	10YR 3/2 Very Dark Grayish Brown	2.5YR 4/8 Red	..
	Degree of Mottling (%)		50	..	..	3	15	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 181	Sample 182	Sample 183	Sample 184	Sample 185	Sample 186
		Sample ID:	81	81	81	82	82	82
		Depth:	20 - 30	45 - 55	65 - 75	0 - 6	45266	15 - 25
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/181	N5559/182	N5559/183	N5559/184	N5559/185	N5559/186
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.06	7.72	6.94	5.62	5.18	5.39
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.031	0.053	0.025	0.033	0.101	0.036
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	0.49	0.41	0.16	3.5	6.7	5.5
	Exchangeable Calcium (kg/ha)		219	182	72	1,572	2,994	2,472
	Exchangeable Calcium (mg/kg)		98	81	32	702	1,337	1,104
	Exchangeable Magnesium (cmol+/kg)		0.63	5.3	2.9	4.5	4.9	12
	Exchangeable Magnesium (kg/ha)		173	1,431	793	1,237	1,339	3,337
	Exchangeable Magnesium (mg/kg)		77	639	354	552	598	1,490
	Exchangeable Potassium (cmol+/kg)		0.14	0.23	0.13	0.54	0.95	0.69
	Exchangeable Potassium (kg/ha)		121	199	113	477	832	602
	Exchangeable Potassium (mg/kg)		54	89	50	213	372	269
	Exchangeable Sodium (cmol+/kg)		0.13	0.42	0.21	<0.065	<0.065	0.30
	Exchangeable Sodium (kg/ha)		67	215	108	<33	<33	152
	Exchangeable Sodium (mg/kg)		30	96	48	<15	<15	68
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.01	0.01	0.01	0.54	0.16	3.0
	Exchangeable Aluminium (kg/ha)		2.4	2.6	2.3	108	32	609
	Exchangeable Aluminium (mg/kg)		1.1	1.2	1.0	48	14	272
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.14	0.14	0.43
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	3.1	3.1	9.5
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	1.4	1.4	4.3
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	1.4	6.3	3.4	9.3	13	22
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	35	6.4	4.7	38	52	25
	Magnesium (%)		45	83	85	49	38	55
	Potassium (%)		9.8	3.6	3.8	5.8	7.4	3.1
	Sodium - ESP (%)		9.3	6.6	6.1	0.68	0.44	1.3
	Aluminium (%)		0.87	0.20	0.34	5.8	1.2	14
	Hydrogen (%)		0.00	0.00	0.00	1.5	1.1	1.9
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.77	0.08	0.06	0.77	1.4	0.45
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/2 Light Brownish Gray	7.5YR 6/1 Gray	2.5YR 7/1 Light Redish Gray	7.5YR 6/3 Light Brown	10YR 4/3 Brown	5YR 5/8 Yellowish Red
	Mottles Munsell Colour		..	10YR 6/8 Brownish Yellow	7.5YR 6/8 Reddish Yellow	..	.. Dark Brown	7.5YR 3/2 Yellowish Red
	Degree of Mottling (%)		..	20	10	..	..	2

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 187	Sample 188	Sample 189	Sample 190	Sample 191	Sample 192
		Sample ID:	82	83	83	83	83	84
		Depth:	35 - 45	0 - 10	15 - 25	35 - 45	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/187	N5559/188	N5559/189	N5559/190	N5559/191	N5559/192
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.63	5.39	5.83	5.32	5.25	5.42
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.039	0.132	0.023	0.036	0.051	0.048
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.1	3.3	0.78	1.6	0.20	0.31
	Exchangeable Calcium (kg/ha)		1,822	1,482	351	699	88	138
	Exchangeable Calcium (mg/kg)		813	661	157	312	39	61
	Exchangeable Magnesium (cmol+/kg)		12	1.7	0.75	6.2	4.7	0.31
	Exchangeable Magnesium (kg/ha)		3,145	452	204	1,688	1,290	85
	Exchangeable Magnesium (mg/kg)		1,404	202	91	753	576	38
	Exchangeable Potassium (cmol+/kg)		0.34	0.30	0.17	0.40	0.38	0.16
	Exchangeable Potassium (kg/ha)		300	260	146	353	329	139
	Exchangeable Potassium (mg/kg)		134	116	65	157	147	62
	Exchangeable Sodium (cmol+/kg)		0.50	0.24	<0.065	0.47	0.60	0.07
	Exchangeable Sodium (kg/ha)		257	125	<33	240	311	36
	Exchangeable Sodium (mg/kg)		115	56	<15	107	139	16
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	2.3	0.14	0.08	1.5	1.5	0.33
	Exchangeable Aluminium (kg/ha)		467	29	16	293	309	66
	Exchangeable Aluminium (mg/kg)		208	13	7.3	131	138	30
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.25	0.04	0.08	0.38	0.51	0.06
	Exchangeable Hydrogen (kg/ha)		5.7	<1	1.9	8.5	11	1.3
	Exchangeable Hydrogen (mg/kg)		2.5	<1	<1	3.8	5.1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	19	5.7	1.9	10	8.0	1.2
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	21	58	41	15	2.5	25
	Magnesium (%)		61	29	39	59	60	25
	Potassium (%)		1.8	5.2	8.8	3.9	4.7	13
	Sodium - ESP (%)		2.6	4.3	2.3	4.5	7.6	5.6
	Aluminium (%)		12	2.5	4.2	14	19	27
	Hydrogen (%)		1.3	0.63	4.4	3.6	6.4	4.8
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.35	2.0	1.0	0.25	0.04	0.98
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/3 Pale Brown	10YR 2/2 Very Dark Brown	10YR 6/2 Light Brownish Gray	7.5YR 6/1 Gray	5YR 5/1 Gray	10YR 4/3 Brown
	Mottles Munsell Colour		5YR 5/8 ..	.. ..	.. ..	7.5YR 5/8 Strong Brown	10YR 5/8 Yellowish Brown	.. ..
	Degree of Mottling (%)		50	..	..	30	30	..

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 193	Sample 194	Sample 195	Sample 196	Sample 197	Sample 198
		Sample ID:	84	84	84	85	85	85
		Depth:	15 - 25	35 - 45	65 - 75	0 - 10	20 - 30	40 - 50
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/193	N5559/194	N5559/195	N5559/196	N5559/197	N5559/198
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.74	6.46	7.05	5.84	6.20	6.69
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.015	0.012	0.049	0.093	0.032	0.021
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	0.20	0.38	0.86	4.1	0.63	0.44
	Exchangeable Calcium (kg/ha)		91	168	386	1,849	285	199
	Exchangeable Calcium (mg/kg)		41	75	172	825	127	89
	Exchangeable Magnesium (cmol$_+$/kg)		0.09	0.44	5.1	2.5	1.1	0.96
	Exchangeable Magnesium (kg/ha)		25	120	1,383	692	298	261
	Exchangeable Magnesium (mg/kg)		11	53	617	309	133	116
	Exchangeable Potassium (cmol$_+$/kg)		<0.12	<0.12	0.20	0.55	0.17	0.12
	Exchangeable Potassium (kg/ha)		<112	<112	172	484	149	<112
	Exchangeable Potassium (mg/kg)		<50	<50	77	216	66	<50
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.07	0.58	0.44	0.15	0.09
	Exchangeable Sodium (kg/ha)		<33	35	300	228	75	47
	Exchangeable Sodium (mg/kg)		<15	16	134	102	33	21
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.11	0.02	0.02	0.05	0.02	0.01
	Exchangeable Aluminium (kg/ha)		21	4.2	4.9	11	4.8	2.3
	Exchangeable Aluminium (mg/kg)		9.5	1.9	2.2	4.8	2.1	1.0
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.06	<0.01	<0.01	0.06	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		1.4	<1	<1	1.4	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	0.58	0.97	6.7	7.8	2.1	1.6
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	35	39	13	53	31	27
	Magnesium (%)		16	45	75	33	53	59
	Potassium (%)		13	6.5	2.9	7.1	8.2	7.5
	Sodium - ESP (%)		8.2	7.0	8.7	5.7	7.0	5.6
	Aluminium (%)		18	2.2	0.36	0.68	1.1	0.71
	Hydrogen (%)		10	0.14	0.00	0.80	0.18	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.2	0.85	0.17	1.6	0.58	0.46
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 6/3 Light Brown	10YR 8/2 Very Pale Brown	10YR 6/2 Light Brownish Gray	10YR 3/2 Very Dark Grayish Brown	10YR 6/1 Gray	10YR 6/1 Gray
	Mottles Munsell Colour		..	..	10YR 5/8 Yellowish Brown	..	..	..
	Degree of Mottling (%)		..	..	10	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 199	Sample 200	Sample 201	Sample 202	Sample 203	Sample 204
		Sample ID:	85	85	86	86	86	86
		Depth:	65 - 75	90 - 100	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/199	N5559/200	N5559/201	N5559/202	N5559/203	N5559/204
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.80	7.10	5.19	6.18	5.97	6.60
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.021	0.037	0.069	0.025	0.042	0.050
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	0.55	1.8	1.9	2.0	3.1	2.3
	Exchangeable Calcium (kg/ha)		246	802	839	899	1,377	1,037
	Exchangeable Calcium (mg/kg)		110	358	375	401	615	463
	Exchangeable Magnesium (cmol+/kg)		1.2	4.3	1.0	1.5	6.3	6.8
	Exchangeable Magnesium (kg/ha)		322	1,177	285	396	1,722	1,843
	Exchangeable Magnesium (mg/kg)		144	525	127	177	769	823
	Exchangeable Potassium (cmol+/kg)		0.12	0.27	0.94	0.71	0.82	0.46
	Exchangeable Potassium (kg/ha)		<112	236	824	625	721	404
	Exchangeable Potassium (mg/kg)		<50	105	368	279	322	181
	Exchangeable Sodium (cmol+/kg)		0.11	0.59	<0.065	<0.065	0.18	0.48
	Exchangeable Sodium (kg/ha)		54	302	<33	<33	92	245
	Exchangeable Sodium (mg/kg)		24	135	<15	<15	41	109
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	<0.01	0.01	0.26	0.03	0.05	0.03
	Exchangeable Aluminium (kg/ha)		1.6	2.2	52	6.5	10	6.6
	Exchangeable Aluminium (mg/kg)		<1	<1	23	2.9	4.5	2.9
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.18	0.04	0.07	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	4.1	<1	1.5	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	1.8	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	2.0	7.0	4.3	4.3	11	10
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	28	26	43	47	29	23
	Magnesium (%)		60	62	24	34	60	67
	Potassium (%)		6.2	3.9	22	17	7.8	4.6
	Sodium - ESP (%)		5.4	8.4	1.1	0.92	1.7	4.7
	Aluminium (%)		0.41	0.16	5.9	0.75	0.47	0.32
	Hydrogen (%)		0.00	0.00	4.2	0.98	0.64	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.46	0.41	1.8	1.4	0.48	0.34
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 7/1 Light Gray	10YR 5/6 Yellowish Brown	7.5YR 4/6 Strong Brown	7.5YR 5/8 Strong Brown	2.5YR 4/8 Red	5YR 4/6 Yellowish Red
	Mottles Munsell Colour		..	10YR 6/2 Light Brownish Gray	..	..	..	10YR 5/6, 2.5YR 2.5/1 Yellowish Brown, Black
	Degree of Mottling (%)		..	50	..	..	..	15

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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7. Total Acid Extractable Nutrients indicate a store of nutrients.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Agricultural Co-Ordinator

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 205	Sample 206	Sample 207	Sample 208	Sample 209	Sample 210
		Sample ID:	87	87	87	88	88	88
		Depth:	0 - 10	15 - 25	35 - 45	0 - 10	10 - 20	30 - 40
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/205	N5559/206	N5559/207	N5559/208	N5559/209	N5559/210
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.60	6.93	7.52	8.32	8.62	8.49
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.077	0.040	0.044	2.096	0.417	0.503
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.4	5.1	4.8	8.6	1.8	2.2
	Exchangeable Calcium (kg/ha)		1,953	2,311	2,145	3,850	789	983
	Exchangeable Calcium (mg/kg)		872	1,032	958	1,719	352	439
	Exchangeable Magnesium (cmol+/kg)		2.1	7.2	8.8	17	7.1	12
	Exchangeable Magnesium (kg/ha)		582	1,955	2,397	4,542	1,920	3,315
	Exchangeable Magnesium (mg/kg)		260	873	1,070	2,028	857	1,480
	Exchangeable Potassium (cmol+/kg)		0.78	0.69	0.55	0.88	0.50	0.78
	Exchangeable Potassium (kg/ha)		685	605	481	769	437	686
	Exchangeable Potassium (mg/kg)		306	270	215	343	195	306
	Exchangeable Sodium (cmol+/kg)		<0.065	0.13	0.23	5.5	1.9	2.2
	Exchangeable Sodium (kg/ha)		<33	69	119	2,831	986	1,121
	Exchangeable Sodium (mg/kg)		<15	31	53	1,264	440	500
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.06	0.03	0.03	0.03	0.02	0.02
	Exchangeable Aluminium (kg/ha)		13	6.5	5.1	5.7	4.4	3.8
	Exchangeable Aluminium (mg/kg)		5.8	2.9	2.3	2.5	2.0	1.7
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.08	<0.01	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		1.8	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	7.5	13	14	32	11	17
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	58	39	33	27	16	13
	Magnesium (%)		29	54	61	53	63	70
	Potassium (%)		10	5.2	3.8	2.8	4.4	4.5
	Sodium - ESP (%)		0.65	1.0	1.6	17	17	13
	Aluminium (%)		0.87	0.24	0.18	0.09	0.19	0.11
	Hydrogen (%)		1.1	0.00	0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.0	0.72	0.54	0.51	0.25	0.18
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 5/6 Strong Brown	7.5YR 4/6 Strong Brown	7.5YR 5/6 Strong Brown	10YR 3/2 Very Dark Grayish Brown	10YR 5/2 Grayish Brown	2.5YR 6/6 Olive Yellow
	Mottles Munsell Colour		..	..	7.5YR 2.5/1 Black	..	..	..
	Degree of Mottling (%)		..	..	1	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 211	Sample 212	Sample 213	Sample 214	Sample 215	Sample 216
		Sample ID:	88	89	89	89	90	90
		Depth:	65 - 75	0 - 10	10 - 20	30 - 40	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/211	N5559/212	N5559/213	N5559/214	N5559/215	N5559/216
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.68	6.54	7.46	8.56	6.02	6.29
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.415	0.096	0.029	0.497	0.043	0.020
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.6	2.9	1.5	2.9	2.6	1.9
	Exchangeable Calcium (kg/ha)		1,164	1,308	692	1,310	1,188	860
	Exchangeable Calcium (mg/kg)		519	584	309	585	530	384
	Exchangeable Magnesium (cmol$_+$/kg)		11	3.0	2.1	13	1.6	1.2
	Exchangeable Magnesium (kg/ha)		2,864	830	571	3,542	426	334
	Exchangeable Magnesium (mg/kg)		1,279	371	255	1,581	190	149
	Exchangeable Potassium (cmol$_+$/kg)		0.56	0.54	0.22	0.88	0.61	0.37
	Exchangeable Potassium (kg/ha)		490	473	194	774	538	323
	Exchangeable Potassium (mg/kg)		219	211	87	346	240	144
	Exchangeable Sodium (cmol$_+$/kg)		1.7	0.39	0.22	2.2	0.11	<0.065
	Exchangeable Sodium (kg/ha)		878	201	111	1,134	57	<33
	Exchangeable Sodium (mg/kg)		392	90	50	506	26	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.02	0.03	0.02	0.03
	Exchangeable Aluminium (kg/ha)		4.4	4.8	4.6	5.5	4.8	5.5
	Exchangeable Aluminium (mg/kg)		1.9	2.1	2.0	2.4	2.1	2.4
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	0.05	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	1.1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	15	6.9	4.1	19	5.0	3.6
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	17	42	38	15	53	53
	Magnesium (%)		68	44	51	68	31	34
	Potassium (%)		3.6	7.8	5.4	4.6	12	10
	Sodium - ESP (%)		11	5.6	5.3	12	2.2	1.6
	Aluminium (%)		0.14	0.35	0.55	0.14	0.47	0.76
	Hydrogen (%)		0.00	0.00	0.00	0.00	1.0	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.25	0.96	0.73	0.22	1.7	1.6
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 6/6 Olive Yellow	10YR 6/2 Light Brownish Gray	10YR 6/3 Pale Brown	10YR 5/4 Yellowish Brown	10YR 4/4 Dark Yellowih Brown	10YR 6/4 Light Yellowish Brown
	Mottles Munsell Colour		10YR 5/2 Grayish Brown	.. ..	.. ..	10YR 2/1 Black	.. ..	.. ..
	Degree of Mottling (%)		5	..	..	10	..	..

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 217	Sample 218	Sample 219	Sample 220	Sample 221	Sample 222
		Sample ID:	90	91	91	91	91	92
		Depth:	40 - 50	0 - 10	42278	20 - 30	50 - 60	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/217	N5559/218	N5559/219	N5559/220	N5559/221	N5559/222
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.49	5.88	6.12	6.83	7.55	6.24
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.027	0.071	0.027	0.035	0.049	0.189
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.9	6.9	2.9	7.6	7.0	9.0
	Exchangeable Calcium (kg/ha)		1,752	3,102	1,299	3,413	3,149	4,031
	Exchangeable Calcium (mg/kg)		782	1,385	580	1,524	1,406	1,800
	Exchangeable Magnesium (cmol$_+$/kg)		5.8	2.4	1.0	5.5	5.7	3.2
	Exchangeable Magnesium (kg/ha)		1,584	640	273	1,499	1,555	862
	Exchangeable Magnesium (mg/kg)		707	286	122	669	694	385
	Exchangeable Potassium (cmol$_+$/kg)		0.51	1.7	0.67	0.93	0.60	2.1
	Exchangeable Potassium (kg/ha)		446	1,471	584	812	523	1,840
	Exchangeable Potassium (mg/kg)		199	657	261	362	234	821
	Exchangeable Sodium (cmol$_+$/kg)		0.15	0.12	<0.065	0.18	0.31	0.07
	Exchangeable Sodium (kg/ha)		79	61	<33	94	162	34
	Exchangeable Sodium (mg/kg)		35	27	<15	42	72	15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.03	0.02	0.04	0.04	0.05
	Exchangeable Aluminium (kg/ha)		5.6	6.5	5.0	7.5	7.8	10
	Exchangeable Aluminium (mg/kg)		2.5	2.9	2.2	3.4	3.5	4.7
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.01	0.05	<0.01	<0.01	<0.01	0.04
	Exchangeable Hydrogen (kg/ha)		<1	1.1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	10	11	4.6	14	14	14
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	37	62	62	53	51	62
	Magnesium (%)		56	21	22	39	42	22
	Potassium (%)		4.9	15	14	6.5	4.4	15
	Sodium - ESP (%)		1.5	1.1	1.00	1.3	2.3	0.45
	Aluminium (%)		0.27	0.29	0.54	0.26	0.28	0.36
	Hydrogen (%)		0.10	0.43	0.00	0.00	0.00	0.30
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.67	2.9	2.9	1.4	1.2	2.8
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/8 Yellowish Brown	7.5YR 6/3 Light Brown	7.5YR 6/4 Light Brown	5YR 4/6 Yellowish Red	10YR 5/6 Yellowish Brown	.. ..
	Mottles Munsell Colour		10YR 5/3, 10YR 2/1 Brown, Black	.. ..	.. ..	.. ..	10YR 6/6, 10YR 2/1 Brownish Yellow, Black	.. ..
	Degree of Mottling (%)		30	..	..	..	20	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 223	Sample 224	Sample 225	Sample 226	Sample 227	Sample 228
		Sample ID:	92	92	93	93	93	93
		Depth:	25 - 35	40 - 50	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/223	N5559/224	N5559/225	N5559/226	N5559/227	N5559/228
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.25	8.17	5.83	6.90	6.96	6.99
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.025	0.057	0.067	0.023	0.025	0.026
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.3	17	4.6	3.8	3.3	3.8
	Exchangeable Calcium (kg/ha)		3,294	7,624	2,085	1,697	1,475	1,713
	Exchangeable Calcium (mg/kg)		1,471	3,404	931	757	659	765
	Exchangeable Magnesium (cmol$_+$/kg)		1.5	6.1	1.8	1.2	7.8	6.9
	Exchangeable Magnesium (kg/ha)		401	1,661	487	323	2,119	1,880
	Exchangeable Magnesium (mg/kg)		179	741	217	144	946	839
	Exchangeable Potassium (cmol$_+$/kg)		0.65	1.2	0.85	0.57	0.57	0.71
	Exchangeable Potassium (kg/ha)		573	1,044	745	500	498	618
	Exchangeable Potassium (mg/kg)		256	466	332	223	222	276
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.12	0.09	<0.065	0.43	0.36
	Exchangeable Sodium (kg/ha)		<33	64	44	<33	221	184
	Exchangeable Sodium (mg/kg)		<15	29	20	<15	99	82
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.06	0.10	0.06	0.07	0.07	0.10
	Exchangeable Aluminium (kg/ha)		11	20	12	14	13	19
	Exchangeable Aluminium (mg/kg)		5.1	9.1	5.3	6.1	5.9	8.6
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.07	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.6	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	9.6	25	7.5	5.7	12	12
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	77	69	62	67	27	32
	Magnesium (%)		15	25	24	21	64	58
	Potassium (%)		6.8	4.9	11	10	4.7	5.9
	Sodium - ESP (%)		0.65	0.51	1.2	0.83	3.5	3.0
	Aluminium (%)		0.59	0.41	0.78	1.2	0.54	0.81
	Hydrogen (%)		0.00	0.00	0.97	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	5.0	2.8	2.6	3.2	0.42	0.55
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 6/4 Light Brown	7.5YR 4/4 Brown	7.5YR 5/6 Strong Brown	2.5YR 3/6 Dark Red	2.5YR 3/6 Dark Red	2.5YR 3/6 Dark Red
	Mottles Munsell Colour		..	5YR 3/4, 5YR 2.5/1	..	..	10YR 5/6	2.5YR 3/1
			..	Dark Reddish Brown, Black	..	..	Yellowish Brown	Dark Reddish Gray
	Degree of Mottling (%)		..	25	..	..	15	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 229	Sample 230	Sample 231	Sample 232	Sample 233	Sample 234
		Sample ID:	94	94	95	95	95	96
		Depth:	0 - 10	20 - 30	0 - 10	20 - 30	50 - 60	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/229	N5559/230	N5559/231	N5559/232	N5559/233	N5559/234
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.19	7.99	5.85	5.32	5.85	5.79
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.062	0.078	0.086	0.037	0.038	0.037
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.1	9.9	6.4	1.5	1.9	4.4
	Exchangeable Calcium (kg/ha)		3,182	4,466	2,893	656	846	1,955
	Exchangeable Calcium (mg/kg)		1,421	1,994	1,292	293	378	873
	Exchangeable Magnesium (cmol$_+$/kg)		3.0	8.7	2.9	3.9	6.1	1.2
	Exchangeable Magnesium (kg/ha)		823	2,379	793	1,057	1,668	337
	Exchangeable Magnesium (mg/kg)		368	1,062	354	472	745	150
	Exchangeable Potassium (cmol$_+$/kg)		1.7	1.3	1.8	1.3	0.66	0.90
	Exchangeable Potassium (kg/ha)		1,529	1,148	1,563	1,128	581	784
	Exchangeable Potassium (mg/kg)		683	512	698	504	259	350
	Exchangeable Sodium (cmol$_+$/kg)		0.12	1.6	<0.065	0.11	0.39	0.08
	Exchangeable Sodium (kg/ha)		61	825	<33	58	203	42
	Exchangeable Sodium (mg/kg)		27	368	<15	26	90	19
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.07	0.08	0.07	0.66	0.26	0.12
	Exchangeable Aluminium (kg/ha)		15	17	14	133	53	23
	Exchangeable Aluminium (mg/kg)		6.7	7.5	6.2	60	24	10
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.04	0.20	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.0	4.5	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	2.0	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	12	22	11	7.6	9.3	6.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	59	46	57	19	20	65
	Magnesium (%)		25	40	26	51	66	19
	Potassium (%)		14	6.0	16	17	7.1	13
	Sodium - ESP (%)		0.99	7.4	0.42	1.5	4.2	1.2
	Aluminium (%)		0.62	0.38	0.61	8.7	2.8	1.7
	Hydrogen (%)		0.00	0.00	0.40	2.6	0.00	0.06
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.3	1.1	2.2	0.38	0.31	3.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 4/4 Reddish Brown	5YR 3/4 Dark Reddish Brown	7.5YR 4/6 Strong Brown	5YR 5/8 Yellowish Red	5YR 4/6 Yellowish Red	7.5YR 5/4 Brown
	Mottles Munsell Colour		..	..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 235	Sample 236	Sample 237	Sample 238	Sample 239	Sample 240
		Sample ID:	96	96	96	97	97	97
		Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/235	N5559/236	N5559/237	N5559/238	N5559/239	N5559/240
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.40	6.79	8.89	6.18	6.59	7.00
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.043	0.039	0.218	0.036	0.018	0.057
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.0	12	24	3.9	3.0	12
	Exchangeable Calcium (kg/ha)		2,262	5,592	10,581	1,767	1,369	5,243
	Exchangeable Calcium (mg/kg)		1,010	2,497	4,724	789	611	2,341
	Exchangeable Magnesium (cmol$_+$/kg)		1.3	3.7	3.5	1.3	1.3	8.3
	Exchangeable Magnesium (kg/ha)		345	1,004	948	360	361	2,266
	Exchangeable Magnesium (mg/kg)		154	448	423	161	161	1,012
	Exchangeable Potassium (cmol$_+$/kg)		0.63	0.84	0.55	0.56	0.48	0.74
	Exchangeable Potassium (kg/ha)		553	734	484	491	423	648
	Exchangeable Potassium (mg/kg)		247	328	216	219	189	289
	Exchangeable Sodium (cmol$_+$/kg)		0.11	0.43	1.5	<0.065	0.08	1.2
	Exchangeable Sodium (kg/ha)		56	223	748	<33	43	636
	Exchangeable Sodium (mg/kg)		25	100	334	<15	19	284
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.01	<0.01	<0.01	<0.01	0.01	0.01
	Exchangeable Aluminium (kg/ha)		2.2	1.5	1.8	1.7	2.2	2.3
	Exchangeable Aluminium (mg/kg)		<1	<1	<1	<1	<1	1.0
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.04	<0.01	<0.01	0.04	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	7.1	17	29	5.9	5.0	22
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	71	71	81	66	62	53
	Magnesium (%)		18	21	12	22	27	38
	Potassium (%)		8.9	4.8	1.9	9.5	9.8	3.4
	Sodium - ESP (%)		1.5	2.5	5.0	0.93	1.7	5.6
	Aluminium (%)		0.15	0.04	0.03	0.14	0.22	0.05
	Hydrogen (%)		0.58	0.00	0.00	0.73	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	4.0	3.4	6.8	3.0	2.3	1.4
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5 YR 5/4 Brown	7.5 YR 3/3 Dark Brown	10 YR 5/6 Yellowish Brown	7.5 YR 6/4 Light Brown	7.5 YR 7/2 Pinkish Grey	10 YR 4/4 Dark Yellowish Brown
	Mottles Munsell Colour		.. ..	.. ..	7.5 YR 4/1 , 7.5 Y 3/1 Dary Grey , Very Dark Grey	.. ..	.. ..	10 YR 3/1 Very Dark Grey
	Degree of Mottling (%)		..	..	30 , 5	..	..	20

Notes:

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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 241	Sample 242	Sample 243	Sample 244	Sample 245	Sample 246
		Sample ID:	98	98	98	98	98	99
		Depth:	0 - 10	20 - 30	40 - 50	65 - 75	90 - 100	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/241	N5559/242	N5559/243	N5559/244	N5559/245	N5559/246
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.16	7.30	7.83	8.11	8.65	7.77
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.046	1.393	1.777	1.464	0.391	0.543
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	11	13	9.1	8.2	14	8.9
	Exchangeable Calcium (kg/ha)		4,945	5,711	4,065	3,664	6,327	4,002
	Exchangeable Calcium (mg/kg)		2,208	2,550	1,815	1,636	2,825	1,787
	Exchangeable Magnesium (cmol+/kg)		3.9	5.3	5.4	6.6	9.4	6.5
	Exchangeable Magnesium (kg/ha)		1,053	1,454	1,483	1,787	2,559	1,760
	Exchangeable Magnesium (mg/kg)		470	649	662	798	1,142	786
	Exchangeable Potassium (cmol+/kg)		0.89	0.67	0.66	0.76	0.65	0.36
	Exchangeable Potassium (kg/ha)		783	587	574	669	569	313
	Exchangeable Potassium (mg/kg)		349	262	256	299	254	140
	Exchangeable Sodium (cmol+/kg)		3.7	4.7	6.0	6.6	2.1	1.8
	Exchangeable Sodium (kg/ha)		1,890	2,445	3,104	3,424	1,099	951
	Exchangeable Sodium (mg/kg)		844	1,092	1,386	1,529	491	425
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.01	<0.01	<0.01	0.01	<0.01	<0.01
	Exchangeable Aluminium (kg/ha)		2.4	1.8	2.0	2.0	1.9	1.7
	Exchangeable Aluminium (mg/kg)		1.1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	19	23	21	22	26	18
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	57	54	43	37	54	51
	Magnesium (%)		20	23	26	30	36	37
	Potassium (%)		4.6	2.9	3.1	3.5	2.5	2.0
	Sodium - ESP (%)		19	20	28	30	8.1	10
	Aluminium (%)		0.06	0.04	0.05	0.05	0.04	0.05
	Hydrogen (%)		0.00	0.00	0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.8	2.4	1.7	1.2	1.5	1.4
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5 YR 2.5/2 Very Dark Brown	10 YR 2/2 Very Dark Brown	10 YR 3/3 Dark Brown	7.5 YR 4/3 Brown	10 YR 5/4 Yellowish Brown	7.5 YR 3/1 Very Dark Brown
	Mottles Munsell Colour		..	..	..	..	10 YR 5/8 , 10 YR 2/1	..
	Degree of Mottling (%)		..	..	..	..	50 , 5	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
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7. Total Acid Extractable Nutrients indicate a store of nutrients.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

Parameter		Method reference	Sample 247	Sample 248	Sample 249	Sample 250	Sample 251	Sample 252
Sample ID:			99	99	99	100	100	100
Depth:			30 - 40	50 - 60	65 - 75	0 - 10	20 - 30	40 - 50
Client:			Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
			N5559/247	N5559/248	N5559/249	N5559/250	N5559/251	N5559/252
pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.12	8.25	8.54	5.68	6.30	6.52
Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.282	0.298	0.358	0.046	0.027	0.028
Exchangeable Calcium	(cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	5.0	5.6	15	2.9	3.1	4.2
	(kg/ha)		2,253	2,492	6,583	1,318	1,409	1,898
	(mg/kg)		1,006	1,113	2,939	588	629	848
Exchangeable Magnesium	(cmol$_+$/kg)		4.2	5.4	13	0.78	1.1	1.5
	(kg/ha)		1,141	1,464	3,480	213	294	410
	(mg/kg)		509	653	1,554	95	131	183
Exchangeable Potassium	(cmol$_+$/kg)		0.26	0.38	0.86	0.72	0.49	0.60
	(kg/ha)		225	331	756	632	430	528
	(mg/kg)		100	148	338	282	192	236
Exchangeable Sodium	(cmol$_+$/kg)		1.1	1.2	1.7	0.07	<0.065	<0.065
	(kg/ha)		583	633	898	35	<33	<33
	(mg/kg)		260	282	401	16	<15	<15
Exchangeable Aluminium	(cmol$_+$/kg)	**Inhouse S37 (KCl)	<0.01	<0.01	<0.01	0.03	<0.01	0.01
	(kg/ha)		1.9	1.7	1.7	5.4	1.9	2.3
	(mg/kg)		<1	<1	<1	2.4	<1	1.0
Exchangeable Hydrogen	(cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.08	<0.01	<0.01
	(kg/ha)		<1	<1	<1	1.9	<1	<1
	(mg/kg)		<1	<1	<1	<1	<1	<1
Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	13	30	4.6	4.8	6.4
Calcium (%)		**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	47	44	49	64	66	66
Magnesium (%)			40	43	43	17	23	24
Potassium (%)			2.4	3.0	2.9	16	10	9.4
Sodium - ESP (%)			11	9.8	5.8	1.5	0.91	0.80
Aluminium (%)			0.09	0.07	0.03	0.58	0.20	0.18
Hydrogen (%)			0.00	0.00	0.00	1.8	0.00	0.00
Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.2	1.0	1.1	3.7	2.9	2.8
Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	2.5 YR 4/3 Olive Brown	10 YR 5/2 Grayish Brown	7.5 YR 3/1 Very Dark Brown	10 YR 4/4 Dark Yellowish Brown	10 YR 4/3 Brown	10 YR 3/3 Dark Brown
Mottles Munsell Colour			..	..	..	..	..	..
			..	..	..	..	..	..
Degree of Mottling (%)			..	..	..	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 253	Sample 254	Sample 255	Sample 256	Sample 257	Sample 258
		Sample ID:	100	100	101	101	101	101
		Depth:	65 - 75	95 - 105	0 - 10	20 - 30	40 - 50	70 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/253	N5559/254	N5559/255	N5559/256	N5559/257	N5559/258
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.59	7.08	6.03	6.82	8.44	8.62
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.023	0.045	0.059	0.030	0.118	0.103
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.9	6.6	6.4	5.8	17	15
	Exchangeable Calcium (kg/ha)		1,302	2,963	2,884	2,624	7,456	6,708
	Exchangeable Calcium (mg/kg)		581	1,323	1,288	1,172	3,329	2,995
	Exchangeable Magnesium (cmol$_+$/kg)		1.1	4.7	1.5	1.3	4.5	5.8
	Exchangeable Magnesium (kg/ha)		296	1,289	405	341	1,221	1,586
	Exchangeable Magnesium (mg/kg)		132	575	181	152	545	708
	Exchangeable Potassium (cmol$_+$/kg)		0.18	0.29	1.3	0.71	1.1	0.93
	Exchangeable Potassium (kg/ha)		153	254	1,163	622	938	818
	Exchangeable Potassium (mg/kg)		69	113	519	278	419	365
	Exchangeable Sodium (cmol$_+$/kg)		0.09	0.73	<0.065	<0.065	0.09	0.11
	Exchangeable Sodium (kg/ha)		49	378	<33	<33	46	56
	Exchangeable Sodium (mg/kg)		22	169	<15	<15	21	25
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	<0.01	0.01	0.01	0.01	0.01	0.02
	Exchangeable Aluminium (kg/ha)		1.8	2.4	2.3	2.9	2.6	3.1
	Exchangeable Aluminium (mg/kg)		<1	1.1	1.0	1.3	1.1	1.4
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.05	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	4.3	12	9.3	7.9	22	22
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	68	53	69	74	75	68
	Magnesium (%)		25	38	16	16	20	27
	Potassium (%)		4.1	2.3	14	9.0	4.8	4.3
	Sodium - ESP (%)		2.2	5.9	0.44	0.36	0.40	0.50
	Aluminium (%)		0.21	0.09	0.12	0.18	0.06	0.07
	Hydrogen (%)		0.00	0.00	0.52	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.7	1.4	4.3	4.7	3.7	2.6
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 2.5/3 Very Dark Brown	7.5YR 2.5/2 Very Dark Brown	7.5YR 2.5/3 Very Dark Brown	7.5YR 3/4 Dark Brown	7.5YR 4/6 Strong Brown	10YR 3/3 Dark Brown
	Mottles Munsell Colour		.. ..	.. ..	7.5YR 6/6 Reddish Yellow	7.5YR 4/6 Strong Brown	7.5YR 8/1 White	.. ..
	Degree of Mottling (%)		..	..	1	2	3	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 259	Sample 260	Sample 261	Sample 262	Sample 263	Sample 264
		Sample ID:	102	102	102	102	103	103
		Depth:	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/259	N5559/260	N5559/261	N5559/262	N5559/263	N5559/264
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.83	6.37	6.98	6.04	5.76	6.42
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.044	0.037	0.265	0.664	0.058	0.015
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.5	1.8	3.9	2.8	3.7	1.8
	Exchangeable Calcium (kg/ha)		1,591	794	1,757	1,272	1,639	788
	Exchangeable Calcium (mg/kg)		710	355	784	568	732	352
	Exchangeable Magnesium (cmol$_+$/kg)		1.5	1.6	12	9.9	1.1	0.61
	Exchangeable Magnesium (kg/ha)		414	439	3,248	2,682	296	166
	Exchangeable Magnesium (mg/kg)		185	196	1,450	1,197	132	74
	Exchangeable Potassium (cmol$_+$/kg)		0.73	0.29	0.49	0.37	0.73	0.26
	Exchangeable Potassium (kg/ha)		640	252	431	325	638	225
	Exchangeable Potassium (mg/kg)		286	112	192	145	285	100
	Exchangeable Sodium (cmol$_+$/kg)		0.11	0.26	2.5	3.4	0.12	<0.065
	Exchangeable Sodium (kg/ha)		56	135	1,301	1,749	62	<33
	Exchangeable Sodium (mg/kg)		25	60	581	781	28	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.03	0.01	0.02	0.03	0.04	0.02
	Exchangeable Aluminium (kg/ha)		6.0	2.7	3.1	6.9	8.4	3.9
	Exchangeable Aluminium (mg/kg)		2.7	1.2	1.4	3.1	3.7	1.7
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.10	<0.01	<0.01	0.06	0.08	0.05
	Exchangeable Hydrogen (kg/ha)		2.3	<1	<1	1.3	1.8	1.1
	Exchangeable Hydrogen (mg/kg)		1.0	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	6.0	4.0	19	17	5.7	2.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	59	45	21	17	64	64
	Magnesium (%)		25	41	63	60	19	22
	Potassium (%)		12	7.3	2.6	2.2	13	9.4
	Sodium - ESP (%)		1.8	6.6	13	21	2.1	1.2
	Aluminium (%)		0.49	0.34	0.08	0.21	0.73	0.71
	Hydrogen (%)		1.7	0.16	0.00	0.36	1.4	1.9
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.3	1.1	0.33	0.29	3.4	2.9
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 3/3 Dark Brown	10YR 6/2 Light Brownish Gray	10YR 5/3 Brown	10YR 5/3 Brown	7.5YR 2.5/2 Very Dark Brown	2.5YR 5/3 Light Olive Brown
	Mottles Munsell Colour		..	..	..	7.5YR 5/8 Strong Brown	..	..
	Degree of Mottling (%)		..	..	..	40	..	..

Notes:

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 265	Sample 266	Sample 267	Sample 268	Sample 269	Sample 270
		Sample ID:	103	103	104	104	105	105
		Depth:	40 - 50	65 - 75	0 - 10	20 - 30	0 - 10	20 - 30
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/265	N5559/266	N5559/267	N5559/268	N5559/269	N5559/270
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.63	7.52	5.67	5.74	5.48	5.54
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.017	0.041	0.041	0.016	0.078	0.017
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	2.3	8.1	2.4	1.0	2.8	1.2
	Exchangeable Calcium (kg/ha)		1,050	3,644	1,077	468	1,261	550
	Exchangeable Calcium (mg/kg)		469	1,627	481	209	563	246
	Exchangeable Magnesium (cmol+/kg)		0.84	7.5	1.0	0.76	1.4	0.80
	Exchangeable Magnesium (kg/ha)		227	2,036	285	207	376	219
	Exchangeable Magnesium (mg/kg)		102	909	127	92	168	98
	Exchangeable Potassium (cmol+/kg)		0.24	0.57	0.36	0.18	0.90	0.34
	Exchangeable Potassium (kg/ha)		207	497	318	157	792	294
	Exchangeable Potassium (mg/kg)		92	222	142	70	354	131
	Exchangeable Sodium (cmol+/kg)		<0.065	0.18	0.13	0.08	0.07	<0.065
	Exchangeable Sodium (kg/ha)		<33	93	68	41	38	<33
	Exchangeable Sodium (mg/kg)		<15	42	30	18	17	<15
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.01	0.02	0.13	0.16	0.12	0.25
	Exchangeable Aluminium (kg/ha)		2.9	3.1	25	33	23	50
	Exchangeable Aluminium (mg/kg)		1.3	1.4	11	15	10	22
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.07	0.09	0.11	0.15
	Exchangeable Hydrogen (kg/ha)		<1	<1	1.6	2.1	2.4	3.3
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	1.1	1.5
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	3.5	16	4.1	2.3	5.4	2.8
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	68	50	58	45	52	44
	Magnesium (%)		24	46	25	33	26	29
	Potassium (%)		6.8	3.5	8.8	7.7	17	12
	Sodium - ESP (%)		0.79	1.1	3.2	3.4	1.4	1.3
	Aluminium (%)		0.41	0.09	3.0	7.0	2.1	8.9
	Hydrogen (%)		0.00	0.00	1.7	4.0	2.0	5.3
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.8	1.1	2.3	1.4	2.0	1.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 5/3 Light Olive Brown	2.5YR 6/3 Pale Olive	7.5YR 2.5/2 Very Dark Brown	7.5YR 4/2 Brown	7.5YR 3/3 Dark Brown	10YR 4/4 Dark Yellowish Brown
	Mottles Munsell Colour		..	10YR 8/1 10YR 5/8	..	..	..	..
			..	White Yellowish Brown	..	..	..	..
	Degree of Mottling (%)		..	2 40	..	..	..	..

Notes:

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17. This report was issued on 6/01/2023.

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Agricultural Co-Ordinator KS

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 271	Sample 272	Sample 273	Sample 274	Sample 275	Sample 276
		Sample ID:	105	105	106	106	106	107
		Depth:	40 - 50	65 - 75	0 - 10	20 - 25	40 - 50	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/271	N5559/272	N5559/273	N5559/274	N5559/275	N5559/276
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.71	5.84	4.62	5.66	5.27	5.65
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.039	0.061	0.966	0.188	0.220	0.112
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.5	0.77	2.5	1.4	1.2	5.6
	Exchangeable Calcium (kg/ha)		692	347	1,112	610	546	2,495
	Exchangeable Calcium (mg/kg)		309	155	496	272	244	1,114
	Exchangeable Magnesium (cmol$_+$/kg)		8.0	8.4	4.2	2.4	3.0	2.4
	Exchangeable Magnesium (kg/ha)		2,182	2,293	1,149	648	807	656
	Exchangeable Magnesium (mg/kg)		974	1,024	513	289	360	293
	Exchangeable Potassium (cmol$_+$/kg)		0.42	0.41	0.44	0.41	0.43	0.85
	Exchangeable Potassium (kg/ha)		372	360	382	359	376	743
	Exchangeable Potassium (mg/kg)		166	161	171	160	168	332
	Exchangeable Sodium (cmol$_+$/kg)		0.55	0.98	2.0	0.88	0.91	0.09
	Exchangeable Sodium (kg/ha)		281	506	1,015	454	469	46
	Exchangeable Sodium (mg/kg)		125	226	453	203	209	21
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.50	0.24	0.43	0.20	0.34	0.04
	Exchangeable Aluminium (kg/ha)		101	49	87	41	68	7.6
	Exchangeable Aluminium (mg/kg)		45	22	39	18	30	3.4
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.23	0.15	0.28	0.11	0.20	0.11
	Exchangeable Hydrogen (kg/ha)		5.1	3.3	6.3	2.5	4.4	2.4
	Exchangeable Hydrogen (mg/kg)		2.3	1.5	2.8	1.1	2.0	1.1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	11	11	9.8	5.3	6.1	9.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	14	7.0	25	25	20	61
	Magnesium (%)		71	77	43	45	49	27
	Potassium (%)		3.8	3.7	4.4	7.7	7.1	9.4
	Sodium - ESP (%)		4.8	9.0	20	17	15	0.99
	Aluminium (%)		4.5	2.2	4.4	3.8	5.6	0.42
	Hydrogen (%)		2.0	1.3	2.9	2.1	3.2	1.2
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.19	0.09	0.59	0.57	0.41	2.3
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 5/8 Yellowish Red	2.5Y 6/2 Light Brownish Gray	7.5YR 2.5/3 Very Dark Brown	7.5YR 2.5/2 Very Dark Brown	7.5YR 4/2 Dark Reddish Gray	5YR 2.5/2 Very Dark Brown
	Mottles Munsell Colour		2.5YR 3/6 2.5yr 7/1 Dark Red Light Reddish Gray	7.5YR 5/8 Strong Brown	.. ..	.. ..	5YR 5/8 Yellowish Red	.. ..
	Degree of Mottling (%)		40 10	40	.. ..	.. ..	15	.. ..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 277	Sample 278	Sample 279	Sample 280	Sample 281	Sample 282
		Sample ID:	107	107	107	108	108	109
		Depth:	20 - 30	45 - 55	70 - 75	0 - 10	20 - 30	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/277	N5559/278	N5559/279	N5559/280	N5559/281	N5559/282
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.17	6.13	8.14	5.21	5.18	6.30
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.023	0.165	0.204	0.030	0.019	0.119
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.9	4.3	3.7	1.4	0.74	9.5
	Exchangeable Calcium (kg/ha)		840	1,919	1,658	621	330	4,284
	Exchangeable Calcium (mg/kg)		375	857	740	277	147	1,913
	Exchangeable Magnesium (cmol$_+$/kg)		1.0	8.3	6.9	0.46	0.25	2.9
	Exchangeable Magnesium (kg/ha)		281	2,259	1,888	124	69	781
	Exchangeable Magnesium (mg/kg)		126	1,008	843	55	31	349
	Exchangeable Potassium (cmol$_+$/kg)		0.20	0.27	0.24	0.20	0.14	0.91
	Exchangeable Potassium (kg/ha)		179	239	208	176	123	798
	Exchangeable Potassium (mg/kg)		80	107	93	79	55	356
	Exchangeable Sodium (cmol$_+$/kg)		0.09	1.4	1.8	<0.065	<0.065	0.14
	Exchangeable Sodium (kg/ha)		47	728	905	<33	<33	70
	Exchangeable Sodium (mg/kg)		21	325	404	<15	<15	31
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.03	<0.01	0.43	0.55	0.04
	Exchangeable Aluminium (kg/ha)		3.9	5.5	1.7	87	111	8.5
	Exchangeable Aluminium (mg/kg)		1.8	2.4	<1	39	49	3.8
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.06	0.07	<0.01	0.19	0.26	0.06
	Exchangeable Hydrogen (kg/ha)		1.5	1.6	<1	4.2	5.7	1.4
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	1.9	2.6	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	3.3	14	13	2.7	2.0	14
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	57	30	29	51	38	70
	Magnesium (%)		31	58	55	17	13	21
	Potassium (%)		6.2	1.9	1.9	7.4	7.2	6.7
	Sodium - ESP (%)		2.8	9.8	14	1.5	1.2	1.0
	Aluminium (%)		0.59	0.19	0.07	16	28	0.31
	Hydrogen (%)		2.0	0.51	0.00	6.9	13	0.45
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.8	0.52	0.53	3.0	2.9	3.3
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 4/3 Brown	10YR 5/1 Gray	10YR 6/8 Brownish Yellow	7.5YR 2.5/2 Very Dark Brown	7.5YR 3/4 Dark Brown	7.5YR 2.5/2 Very Dark Brown
	Mottles Munsell Colour		.. ..	10YR 5/8 Yellowish Brown	10YR 6/2 Light Brownish Gray	.. ..	.. ..	.. ..
	Degree of Mottling (%)		..	40	40	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 283	Sample 284	Sample 285	Sample 286	Sample 287	Sample 288
		Sample ID:	109	109	109	110	110	110
		Depth:	20 - 30	40 - 50	65 - 75	0 - 10	20 - 30	40 - 50
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/283	N5559/284	N5559/285	N5559/286	N5559/287	N5559/288
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.03	6.58	6.48	6.31	6.36	7.10
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.016	0.043	0.031	0.034	0.019	0.017
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.4	3.9	2.0	4.6	2.6	3.7
	Exchangeable Calcium (kg/ha)		608	1,757	901	2,062	1,159	1,672
	Exchangeable Calcium (mg/kg)		271	785	402	920	518	747
	Exchangeable Magnesium (cmol$_+$/kg)		0.49	6.6	5.5	1.2	0.65	2.8
	Exchangeable Magnesium (kg/ha)		132	1,799	1,498	315	176	758
	Exchangeable Magnesium (mg/kg)		59	803	669	141	78	339
	Exchangeable Potassium (cmol$_+$/kg)		0.31	0.61	0.42	0.57	0.28	0.47
	Exchangeable Potassium (kg/ha)		269	532	371	498	247	412
	Exchangeable Potassium (mg/kg)		120	237	166	222	110	184
	Exchangeable Sodium (cmol$_+$/kg)		<0.065	0.14	0.20	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		<33	72	101	<33	<33	<33
	Exchangeable Sodium (mg/kg)		<15	32	45	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.02	0.01	0.01	0.02
	Exchangeable Aluminium (kg/ha)		3.7	3.7	4.3	3.0	2.8	3.4
	Exchangeable Aluminium (mg/kg)		1.7	1.7	1.9	1.3	1.3	1.5
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.03	<0.01	0.03	<0.01	0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	2.2	11	8.2	6.4	3.6	7.1
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	61	35	25	72	72	53
	Magnesium (%)		22	59	67	18	18	39
	Potassium (%)		14	5.4	5.2	8.9	7.9	6.7
	Sodium - ESP (%)		0.46	1.2	2.4	0.41	0.86	0.80
	Aluminium (%)		0.84	0.16	0.26	0.23	0.39	0.24
	Hydrogen (%)		1.3	0.00	0.32	0.00	0.29	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	2.8	0.59	0.36	4.0	4.0	1.3
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/3 Brown	10YR 5/8 Yellowish Brown	10YR 5/8 Yellowish Brown	7.5YR 2.5/2 Very Dark Brown	10YR 4/4 Dark Yellowish Brown	10R 4/6 Red
	Mottles Munsell Colour		.. ..	10YR 7/2 Light Gray	10YR 7/2 Light Gray	.. ..	.. ..	7.5YR 5/6 Strong Brown
	Degree of Mottling (%)		..	30	40	..	..	40

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
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10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 289	Sample 290	Sample 291	Sample 292	Sample 293	Sample 294
		Sample ID:	110	111	111	111	111	112
		Depth:	70 - 75	0 - 10	20 - 30	40 - 50	65 - 75	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/289	N5559/290	N5559/291	N5559/292	N5559/293	N5559/294
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.07	6.75	6.54	7.04	7.29	6.66
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.018	0.051	0.022	0.022	0.024	0.047
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.4	5.3	1.7	2.9	6.3	5.4
	Exchangeable Calcium (kg/ha)		1,506	2,369	756	1,320	2,842	2,425
	Exchangeable Calcium (mg/kg)		672	1,058	337	589	1,269	1,083
	Exchangeable Magnesium (cmol+/kg)		2.0	0.98	0.34	0.73	2.9	3.6
	Exchangeable Magnesium (kg/ha)		532	267	93	198	780	991
	Exchangeable Magnesium (mg/kg)		237	119	42	88	348	442
	Exchangeable Potassium (cmol+/kg)		0.38	0.73	0.59	0.37	0.56	1.3
	Exchangeable Potassium (kg/ha)		331	641	513	328	491	1,102
	Exchangeable Potassium (mg/kg)		148	286	229	146	219	492
	Exchangeable Sodium (cmol+/kg)		<0.065	<0.065	<0.065	<0.065	0.07	0.07
	Exchangeable Sodium (kg/ha)		<33	<33	<33	<33	35	38
	Exchangeable Sodium (mg/kg)		<15	<15	<15	<15	16	17
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.01	0.01	0.02	0.02
	Exchangeable Aluminium (kg/ha)		3.9	3.8	2.2	2.9	4.1	4.7
	Exchangeable Aluminium (mg/kg)		1.7	1.7	<1	1.3	1.8	2.1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	5.7	7.0	2.7	4.1	9.8	10
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	58	75	63	72	64	52
	Magnesium (%)		34	14	13	18	29	35
	Potassium (%)		6.6	10	22	9.2	5.7	12
	Sodium - ESP (%)		0.51	0.00	1.2	0.59	0.70	0.71
	Aluminium (%)		0.34	0.27	0.42	0.35	0.21	0.23
	Hydrogen (%)		0.00	0.00	0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.7	5.4	4.9	4.1	2.2	1.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 5/6 Strong Brown	7.5YR 5/3 Brown	7.5YR 4/4 Brown	10YR 5/8 Yellowish Brown	10YR 4/6 Strong Brown	7.5YR 3/4 Dark Brown
	Mottles Munsell Colour		..	..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 295	Sample 296	Sample 297	Sample 298	Sample 299	Sample 300
		Sample ID:	112	112	113	113	113	113
		Depth:	20 - 30	40 - 50	0 - 10	20 - 30	40 - 50	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/295	N5559/296	N5559/297	N5559/298	N5559/299	N5559/300
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.68	6.87	5.78	6.04	7.14	7.46
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.058	0.046	0.053	0.014	0.035	0.170
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.5	8.7	3.3	1.1	4.4	3.4
	Exchangeable Calcium (kg/ha)		2,931	3,892	1,471	493	1,976	1,543
	Exchangeable Calcium (mg/kg)		1,309	1,738	657	220	882	689
	Exchangeable Magnesium (cmol$_+$/kg)		3.7	8.4	1.1	0.64	6.3	6.4
	Exchangeable Magnesium (kg/ha)		1,002	2,295	291	175	1,726	1,739
	Exchangeable Magnesium (mg/kg)		447	1,025	130	78	771	777
	Exchangeable Potassium (cmol$_+$/kg)		1.4	1.3	0.50	0.21	0.75	0.56
	Exchangeable Potassium (kg/ha)		1,257	1,115	439	181	653	491
	Exchangeable Potassium (mg/kg)		561	498	196	81	291	219
	Exchangeable Sodium (cmol$_+$/kg)		0.07	0.17	0.09	<0.065	0.23	0.83
	Exchangeable Sodium (kg/ha)		36	89	48	<33	121	427
	Exchangeable Sodium (mg/kg)		16	40	22	<15	54	190
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.06	0.04	0.04	0.08
	Exchangeable Aluminium (kg/ha)		4.5	4.9	12	7.2	7.7	17
	Exchangeable Aluminium (mg/kg)		2.0	2.2	5.3	3.2	3.4	7.5
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	0.10	0.05	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	2.2	1.2	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	12	19	5.1	2.1	12	11
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	56	47	64	53	37	30
	Magnesium (%)		31	45	21	31	54	57
	Potassium (%)		12	6.9	9.8	9.9	6.3	5.0
	Sodium - ESP (%)		0.60	0.93	1.8	2.0	2.0	7.3
	Aluminium (%)		0.19	0.13	1.2	1.7	0.33	0.74
	Hydrogen (%)		0.00	0.00	1.9	2.6	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	1.8	1.0	3.1	1.7	0.69	0.54
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 2.5/3 Dark Reddish Brown	5YR 4/6 Yellowish Red	7.5YR 2.5/2 Very Dark Brown	10YR 6/2 Light Brownish Gray	2.5Y 5/6 Light Olive Brown	10YR 4/6 Dark Yellowish Brown
	Mottles Munsell Colour		..	..	..	..	..	10YR 5/1 Gray
	Degree of Mottling (%)		..	..	..	..	..	40

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 301	Sample 302	Sample 303	Sample 304	Sample 305	Sample 306
		Sample ID:	114	114	114	115	115	116
		Depth:	0 - 10	20 - 30	40 - 50	0 - 10	20 - 30	0 - 10
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/301	N5559/302	N5559/303	N5559/304	N5559/305	N5559/306
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.83	6.67	6.93	6.49	6.82	5.88
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.046	0.034	0.035	0.039	0.029	0.045
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.1	8.7	12	8.3	9.4	3.9
	Exchangeable Calcium (kg/ha)		3,182	3,917	5,456	3,711	4,210	1,757
	Exchangeable Calcium (mg/kg)		1,421	1,749	2,436	1,657	1,880	784
	Exchangeable Magnesium (cmol+/kg)		2.4	3.3	9.7	1.7	2.2	2.5
	Exchangeable Magnesium (kg/ha)		644	894	2,630	464	597	692
	Exchangeable Magnesium (mg/kg)		287	399	1,174	207	267	309
	Exchangeable Potassium (cmol+/kg)		1.1	1.1	0.85	1.3	0.75	0.71
	Exchangeable Potassium (kg/ha)		936	981	747	1,144	653	621
	Exchangeable Potassium (mg/kg)		418	438	333	511	292	277
	Exchangeable Sodium (cmol+/kg)		<0.065	<0.065	0.69	<0.065	0.07	0.08
	Exchangeable Sodium (kg/ha)		<33	<33	358	<33	35	43
	Exchangeable Sodium (mg/kg)		<15	<15	160	<15	16	19
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.08	0.10	0.09	0.10	0.05	0.08
	Exchangeable Aluminium (kg/ha)		17	20	18	21	11	17
	Exchangeable Aluminium (mg/kg)		7.4	8.8	7.9	9.2	4.8	7.5
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	11	13	23	11	12	7.3
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	66	66	52	72	75	53
	Magnesium (%)		22	25	41	15	18	35
	Potassium (%)		10	8.4	3.6	11	6.0	9.7
	Sodium - ESP (%)		0.44	0.33	3.0	0.26	0.55	1.1
	Aluminium (%)		0.77	0.74	0.38	0.90	0.43	1.1
	Hydrogen (%)		0.08	0.00	0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	3.0	2.7	1.3	4.9	4.3	1.5
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 3/4 Dark Brown	5YR 3/4 Dark Reddish Brown	5YR 3/4 Dark Reddish Brown	5YR 4/6 Yellowish Red	2.5YR 3/6 Dark Red	2.5YR 3/6 Dark Reddish Brown
	Mottles Munsell Colour		..	..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Agricultural Co-Ordinator

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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 307	Sample 308	Sample 309	Sample 310	Sample 311	Sample 312
		Sample ID:	116	116	116	117	117	117
		Depth:	20 - 30	40 - 50	55 - 65	0 - 10	20 - 30	40 - 50
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/307	N5559/308	N5559/309	N5559/310	N5559/311	N5559/312
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.71	6.12	7.16	6.22	6.46	6.89
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.029	0.048	0.184	0.027	0.022	0.022
	Exchangeable Calcium (cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.0	5.8	7.3	3.4	2.6	3.9
	Exchangeable Calcium (kg/ha)		2,701	2,600	3,283	1,523	1,174	1,743
	Exchangeable Calcium (mg/kg)		1,206	1,161	1,466	680	524	778
	Exchangeable Magnesium (cmol$_+$/kg)		9.1	9.4	12	1.1	0.72	1.3
	Exchangeable Magnesium (kg/ha)		2,480	2,549	3,142	291	195	345
	Exchangeable Magnesium (mg/kg)		1,107	1,138	1,403	130	87	154
	Exchangeable Potassium (cmol$_+$/kg)		0.70	0.51	0.53	0.63	0.62	0.56
	Exchangeable Potassium (kg/ha)		609	449	465	551	542	491
	Exchangeable Potassium (mg/kg)		272	200	208	246	242	219
	Exchangeable Sodium (cmol$_+$/kg)		0.64	0.95	2.1	<0.065	<0.065	<0.065
	Exchangeable Sodium (kg/ha)		328	492	1,099	<33	<33	<33
	Exchangeable Sodium (mg/kg)		147	219	490	<15	<15	<15
	Exchangeable Aluminium (cmol$_+$/kg)	**Inhouse S37 (KCl)	1.6	0.33	0.11	0.04	0.01	<0.01
	Exchangeable Aluminium (kg/ha)		315	66	23	8.8	2.6	1.8
	Exchangeable Aluminium (mg/kg)		141	30	10	4.0	1.2	<1
	Exchangeable Hydrogen (cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	18	17	22	5.2	4.0	5.8
	Calcium (%)	**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	33	34	34	65	65	67
	Magnesium (%)		51	55	53	21	18	22
	Potassium (%)		3.9	3.0	2.5	12	15	9.7
	Sodium - ESP (%)		3.5	5.6	9.9	1.00	0.53	0.95
	Aluminium (%)		8.7	1.9	0.52	0.85	0.32	0.15
	Hydrogen (%)		0.00	0.00	0.00	0.00	0.44	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol$_+$/kg)	0.66	0.62	0.63	3.2	3.7	3.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	2.5YR 3/6 Dark Red	2.5YR 3/6 Dark Red	10YR 4/4 Dark Yellowish Brown	7.5YR 2.5/2 Very Dark Brown	7.5YR 3/4 Dark Brown	10YR 5/4 Yellowish Brown
	Mottles Munsell Colour		..	..	10R 3/4 Dusky Red	..	..	..
	Degree of Mottling (%)		..	..	10	..	..	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil res
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample 313	Sample 314	Sample 315	Sample 316	Sample 317
		Sample ID:	117	118	118	118	118
		Depth:	60 - 70	0 - 10	10 - 20	30 - 40	65 - 75
		Client:	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies	Resource Strategies
	Parameter	Method reference	N5559/313	N5559/314	N5559/315	N5559/316	N5559/317
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.32	5.95	6.53	7.36	8.27
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.085	0.050	0.026	0.030	0.076
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	7.1	5.6	4.5	7.1	9.1
	Exchangeable Calcium (kg/ha)		3,193	2,515	2,029	3,193	4,065
	Exchangeable Calcium (mg/kg)		1,426	1,123	906	1,426	1,815
	Exchangeable Magnesium (cmol+/kg)		6.5	1.3	0.89	4.8	11
	Exchangeable Magnesium (kg/ha)		1,758	361	243	1,294	3,037
	Exchangeable Magnesium (mg/kg)		785	161	108	578	1,356
	Exchangeable Potassium (cmol+/kg)		1.3	1.1	0.57	0.51	0.75
	Exchangeable Potassium (kg/ha)		1,123	971	497	448	659
	Exchangeable Potassium (mg/kg)		501	433	222	200	294
	Exchangeable Sodium (cmol+/kg)		0.14	<0.065	<0.065	0.12	0.40
	Exchangeable Sodium (kg/ha)		72	<33	<33	63	204
	Exchangeable Sodium (mg/kg)		32	<15	<15	28	91
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	<0.01	0.02	<0.01	<0.01	<0.01
	Exchangeable Aluminium (kg/ha)		1.8	4.5	1.8	2.0	1.5
	Exchangeable Aluminium (mg/kg)		<1	2.0	<1	<1	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	0.04	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	15	8.1	6.0	13	21
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	47	69	75	57	42
	Magnesium (%)		43	16	15	38	52
	Potassium (%)		8.5	14	9.5	4.1	3.5
	Sodium - ESP (%)		0.94	0.23	0.37	0.97	1.9
	Aluminium (%)		0.06	0.28	0.15	0.08	0.04
	Hydrogen (%)		0.00	0.48	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.1	4.2	5.1	1.5	0.81
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	5YR 4/6 Yellowish Red	7.5YR 2.5/3 Very Dark Brown	7.5YR 3/4 Dark Brown	2.5YR 3/6 Dark Red	10YR 6/8 Brownish Yellow
	Mottles Munsell Colour		..	..	..	2.5YR 8/1 White	..
	Degree of Mottling (%)		..	..	..	15	..

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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AGRICULTURAL SOIL ANALYSIS REPORT

317 samples supplied by Minesoils Pty. Ltd. on 12/12/2022. Lab Job No.N5559

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 2 BSAL

Not Given

			Sample ID:	***Heavy Soil***	***Medium Soil***	***Light Soil***	***Sandy Soil***
			Depth:				
			Client:	*Clay*	*Clay Loam*	*Loam*	*Loamy Sand*
	Parameter		**Method reference**	**Indicative guidelines - refer to Notes 6 and 8**			
	pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	*6.5*	*6.5*	*6.3*	*6.3*
	Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	*0.200*	*0.150*	*0.120*	*0.100*
	Exchangeable Calcium	**(cmol$_+$/kg)**	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	*15.6*	*10.8*	*5.0*	*1.9*
		(kg/ha)		*7000*	*4816*	*2240*	*840*
		(mg/kg)		*3125*	*2150*	*1000*	*375*
	Exchangeable Magnesium	**(cmol$_+$/kg)**		*2.4*	*1.7*	*1.2*	*0.60*
		(kg/ha)		*650*	*448*	*325*	*168*
		(mg/kg)		*290*	*200*	*145*	*75*
	Exchangeable Potassium	**(cmol$_+$/kg)**		*0.60*	*0.50*	*0.40*	*0.30*
		(kg/ha)		*526*	*426*	*336*	*224*
		(mg/kg)		*235*	*190*	*150*	*100*
	Exchangeable Sodium	**(cmol$_+$/kg)**		*0.3*	*0.26*	*0.22*	*0.11*
		(kg/ha)		*155*	*134*	*113*	*57*
		(mg/kg)		*69*	*60*	*51*	*25*
	Exchangeable Aluminium	**(cmol$_+$/kg)**	**Inhouse S37 (KCl)	*0.6*	*0.5*	*0.4*	*0.2*
		(kg/ha)		*121*	*101*	*73*	*30*
		(mg/kg)		*54*	*45*	*32*	*14*
	Exchangeable Hydrogen	**(cmol$_+$/kg)**	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	*0.6*	*0.5*	*0.4*	*0.2*
		(kg/ha)		*13*	*11*	*8*	*3*
		(mg/kg)		*6*	*5*	*4*	*2*
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	*20.1*	*14.3*	*7.8*	*3.3*
	Calcium (%)		**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	*77.6*	*75.7*	*65.6*	*57.4*
	Magnesium (%)			*11.9*	*11.9*	*15.7*	*18.1*
	Potassium (%)			*3.0*	*3.5*	*5.2*	*9.1*
	Sodium - ESP (%)			*1.5*	*1.8*	*2.9*	*3.3*
	Aluminium (%)			*6.0*	*7.1*	*10.5*	*12.1*
	Hydrogen (%)						
	Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol$_+$/kg)	*6.5*	*6.4*	*4.2*	*3.2*
	Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	..			
	Mottles Munsell Colour			..			
	Degree of Mottling (%)			..			

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwo
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil resu
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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17. This report was issued on 6/01/2023.

Quality Checked: Kris Saville
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AGRICULTURAL SOIL ANALYSIS REPORT

32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 1	Sample 2	Sample 3	Sample 4
		Sample ID:	**136 0 - 10**	**136 20 - 30**	**136 40 - 50**	**136 65 - 75**
		Crop:	**N/G**	**N/G**	**N/G**	**N/G**
		Client:	**Minesoil**	**Minesoil**	**Minesoil**	**Minesoil**
	Parameter	**Method reference**	**N6757/1**	**N6757/2**	**N6757/3**	**N6757/4**
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.68	5.67	6.08	5.42
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.045	0.015	0.035	0.202
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.4	1.3	2.5	0.97
	Exchangeable Calcium (kg/ha)		642	574	1,121	436
	Exchangeable Calcium (mg/kg)		286	256	501	195
	Exchangeable Magnesium (cmol+/kg)		0.80	0.35	6.8	9.4
	Exchangeable Magnesium (kg/ha)		219	96	1,855	2,571
	Exchangeable Magnesium (mg/kg)		98	43	828	1,148
	Exchangeable Potassium (cmol+/kg)		0.70	0.28	0.41	0.56
	Exchangeable Potassium (kg/ha)		611	245	357	489
	Exchangeable Potassium (mg/kg)		273	109	159	218
	Exchangeable Sodium (cmol+/kg)		<0.065	<0.065	0.37	1.7
	Exchangeable Sodium (kg/ha)		<33	<33	191	899
	Exchangeable Sodium (mg/kg)		<15	<15	85	401
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.13	0.17	0.12	0.28
	Exchangeable Aluminium (kg/ha)		25	34	24	56
	Exchangeable Aluminium (mg/kg)		11	15	11	25
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.09	0.15	0.10	0.22
	Exchangeable Hydrogen (kg/ha)		2.1	3.4	2.1	4.8
	Exchangeable Hydrogen (mg/kg)		<1	1.5	<1	2.2
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	3.2	2.3	10	13
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	45	57	24	7.4
	Magnesium (%)		25	16	66	71
	Potassium (%)		22	12	4.0	4.2
	Sodium - ESP (%)		0.55	1.1	3.6	13
	Aluminium (%)		4.0	7.4	1.1	2.1
	Hydrogen (%)		3.0	6.7	0.93	1.6
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.8	3.6	0.37	0.10
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 7/2 Light Gray	10YR 7/2 Light Gray	10YR 5/4 Yellowish Brown	2.5Y 6/4 Light Yellowish Brown
	Mottles Munsell Colour		..	..	2.5YR 4/8, 10YR 7/1	2.5YR 4/8, 10YR 7/1
	Degree of Mottling (%)		..	..	Red, Light Gray	Red
			..	..	50 , 30	40

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AGRICULTURAL SOIL ANALYSIS REPORT

32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

		Sample 1	Sample 2	Sample 3	Sample 4
	Sample ID:	136 0 - 10	136 20 - 30	136 40 - 50	136 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/1	N6757/2	N6757/3	N6757/4

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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17. This report was issued on 2/02/2023.

NATA
WORLD RECOGNISED ACCREDITATION
Accreditation No. 14960
Accredited for compliance with ISO/IEC 17025 - Testing

Quality Checked: Kris Saville
Agricultural Co-Ordinator

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 5	Sample 6	Sample 7	Sample 8
		Sample ID:	137 0 - 10	137 20 - 30	137 40 - 50	137 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	**Method reference**	**N6757/5**	**N6757/6**	**N6757/7**	**N6757/8**
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.18	7.24	7.67	7.69
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.065	0.032	0.062	0.053
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.8	1.5	4.1	4.1
	Exchangeable Calcium (kg/ha)		1,707	672	1,821	1,824
	Exchangeable Calcium (mg/kg)		762	300	813	814
	Exchangeable Magnesium (cmol+/kg)		2.1	1.1	4.8	5.0
	Exchangeable Magnesium (kg/ha)		584	296	1,301	1,368
	Exchangeable Magnesium (mg/kg)		261	132	581	611
	Exchangeable Potassium (cmol+/kg)		0.54	0.37	0.59	0.59
	Exchangeable Potassium (kg/ha)		470	323	515	517
	Exchangeable Potassium (mg/kg)		210	144	230	231
	Exchangeable Sodium (cmol+/kg)		0.24	0.12	0.67	0.62
	Exchangeable Sodium (kg/ha)		123	59	344	320
	Exchangeable Sodium (mg/kg)		55	27	153	143
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.05	0.03	0.02	0.03
	Exchangeable Aluminium (kg/ha)		9.3	6.4	4.9	6.3
	Exchangeable Aluminium (mg/kg)		4.2	2.9	2.2	2.8
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	6.8	3.1	10	10
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	56	48	40	39
	Magnesium (%)		32	35	47	49
	Potassium (%)		7.9	12	5.8	5.7
	Sodium - ESP (%)		3.5	3.7	6.6	6.0
	Aluminium (%)		0.68	1.0	0.24	0.30
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.8	1.4	0.85	0.81
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/2 Light Brownish Gray	5YR 8/1 White	7.5YR 6/1 Gray	5YR 5/1 Gray
	Mottles Munsell Colour		..	..	10YR 5/6	10YR 5/6
	Degree of Mottling (%)		..	..	Yellowish Brown	Yellowish Brown
			..	..	40	30

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32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

		Sample 5	Sample 6	Sample 7	Sample 8
	Sample ID:	137 0 - 10	137 20 - 30	137 40 - 50	137 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/5	N6757/6	N6757/7	N6757/8

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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    122 mg/kg Magnesium, 200 mg/kg Calcium
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12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Agricultural Co-Ordinator KS

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32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 9	Sample 10	Sample 11	Sample 12
		Sample ID:	138 0 - 10	138 20 - 30	138 40 - 50	138 70 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/9	N6757/10	N6757/11	N6757/12
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.48	6.28	7.08	6.01
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.204	0.268	0.122	0.333
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	1.7	0.91	1.1	1.8
	Exchangeable Calcium (kg/ha)		752	408	483	817
	Exchangeable Calcium (mg/kg)		336	182	216	365
	Exchangeable Magnesium (cmol+/kg)		1.5	0.72	0.82	5.7
	Exchangeable Magnesium (kg/ha)		416	196	222	1,538
	Exchangeable Magnesium (mg/kg)		186	87	99	687
	Exchangeable Potassium (cmol+/kg)		0.30	0.13	0.15	0.36
	Exchangeable Potassium (kg/ha)		264	114	131	312
	Exchangeable Potassium (mg/kg)		118	51	58	139
	Exchangeable Sodium (cmol+/kg)		0.95	0.75	0.53	1.6
	Exchangeable Sodium (kg/ha)		491	388	275	802
	Exchangeable Sodium (mg/kg)		219	173	123	358
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.03	0.02	0.02	0.03
	Exchangeable Aluminium (kg/ha)		6.2	4.7	4.3	5.9
	Exchangeable Aluminium (mg/kg)		2.8	2.1	1.9	2.7
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	4.5	2.5	2.6	9.4
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	37	36	41	19
	Magnesium (%)		34	28	31	60
	Potassium (%)		6.7	5.1	5.7	3.8
	Sodium - ESP (%)		21	30	21	17
	Aluminium (%)		0.68	0.92	0.81	0.31
	Hydrogen (%)		0.00	0.00	0.00	0.12
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.1	1.3	1.3	0.32
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/3 Brown	10YR 7/2 Light Gray	10YR 7/2 Light Gray	2.5Y 7/1 Light Gray
	Mottles Munsell Colour		..	..	..	10YR 6/8, 2.5YR 3/6
	Degree of Mottling (%)		..	..	..	Brownish Yellow, Dark Red
			..	..	..	40, 15

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Not Given

		Sample 9	Sample 10	Sample 11	Sample 12
	Sample ID:	138 0 - 10	138 20 - 30	138 40 - 50	138 70 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/9	N6757/10	N6757/11	N6757/12

Notes:

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2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 13	Sample 14	Sample 15	Sample 16
		Sample ID:	139 0 - 10	139 20 - 30	139 40 - 50	139 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/13	N6757/14	N6757/15	N6757/16
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.40	8.29	8.95	8.80
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.506	0.209	0.228	0.274
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	8.3	9.4	9.3	11
	Exchangeable Calcium (kg/ha)		3,727	4,226	4,172	4,851
	Exchangeable Calcium (mg/kg)		1,664	1,887	1,863	2,166
	Exchangeable Magnesium (cmol+/kg)		8.3	9.2	8.2	8.8
	Exchangeable Magnesium (kg/ha)		2,247	2,501	2,229	2,391
	Exchangeable Magnesium (mg/kg)		1,003	1,117	995	1,068
	Exchangeable Potassium (cmol+/kg)		1.5	1.2	0.88	0.95
	Exchangeable Potassium (kg/ha)		1,294	1,088	774	828
	Exchangeable Potassium (mg/kg)		578	486	345	370
	Exchangeable Sodium (cmol+/kg)		1.8	0.52	1.5	1.5
	Exchangeable Sodium (kg/ha)		944	270	759	771
	Exchangeable Sodium (mg/kg)		421	120	339	344
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.02	0.02
	Exchangeable Aluminium (kg/ha)		4.9	4.5	4.7	4.9
	Exchangeable Aluminium (mg/kg)		2.2	2.0	2.1	2.2
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	20	20	20	22
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	42	46	47	49
	Magnesium (%)		41	45	41	40
	Potassium (%)		7.4	6.1	4.4	4.3
	Sodium - ESP (%)		9.2	2.6	7.4	6.8
	Aluminium (%)		0.12	0.11	0.12	0.11
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.0	1.0	1.1	1.2
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 6/1 Gray	2.5Y 4/3 Olive Brown	10YR 5/3 Brown	5YR 5/1 Gray
	Mottles Munsell Colour		..	..	10YR 5/6, 10YR 3/1	10YR 6/6
	Degree of Mottling (%)		..	..	Yellowish Brown, Very Dark Gray	Brownish Yellow
			..	..	30, 15	20

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Not Given

		Sample 13	Sample 14	Sample 15	Sample 16
	Sample ID:	139 0 - 10	139 20 - 30	139 40 - 50	139 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/13	N6757/14	N6757/15	N6757/16

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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AGRICULTURAL SOIL ANALYSIS REPORT

32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 17	Sample 18	Sample 19	Sample 20
		Sample ID:	140 0 - 10	140 20 - 30	140 40 - 50	140 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	**Method reference**	**N6757/17**	**N6757/18**	**N6757/19**	**N6757/20**
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	5.88	6.34	6.73	8.06
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.036	0.017	0.014	0.068
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	4.2	3.5	2.1	5.0
	Exchangeable Calcium (kg/ha)		1,864	1,591	960	2,223
	Exchangeable Calcium (mg/kg)		832	710	429	993
	Exchangeable Magnesium (cmol+/kg)		1.0	0.74	1.1	4.7
	Exchangeable Magnesium (kg/ha)		284	201	286	1,270
	Exchangeable Magnesium (mg/kg)		127	90	128	567
	Exchangeable Potassium (cmol+/kg)		0.68	0.57	0.28	0.55
	Exchangeable Potassium (kg/ha)		600	500	245	485
	Exchangeable Potassium (mg/kg)		268	223	109	216
	Exchangeable Sodium (cmol+/kg)		<0.065	<0.065	<0.065	0.39
	Exchangeable Sodium (kg/ha)		<33	<33	<33	203
	Exchangeable Sodium (mg/kg)		<15	<15	<15	90
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.03	0.03	0.03	0.02
	Exchangeable Aluminium (kg/ha)		5.5	5.8	5.3	4.6
	Exchangeable Aluminium (mg/kg)		2.5	2.6	2.4	2.1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.08	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		1.8	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	6.0	4.9	3.5	11
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	69	72	61	47
	Magnesium (%)		17	15	30	44
	Potassium (%)		11	12	7.9	5.2
	Sodium - ESP (%)		0.78	0.31	0.83	3.7
	Aluminium (%)		0.45	0.59	0.74	0.22
	Hydrogen (%)		1.3	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	4.0	4.8	2.0	1.1
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 5/2 Brown	7.5YR 6/2 Pinkish Gray	10YR 8/2 Very Pale Brown	10YR 5/6 Yellowish Brown
	Mottles Munsell Colour		..	..	..	2.5Y 6/1, 5YR 4/6 Gray, Yellowish Red
	Degree of Mottling (%)		..	..	..	50, 40

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

		Sample 17	Sample 18	Sample 19	Sample 20
	Sample ID:	140 0 - 10	140 20 - 30	140 40 - 50	140 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/17	N6757/18	N6757/19	N6757/20

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 21	Sample 22	Sample 23	Sample 24
		Sample ID:	141 0 - 10	141 20 - 30	141 40 - 50	141 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/21	N6757/22	N6757/23	N6757/24
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.14	8.32	8.13	8.54
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.505	0.783	1.579	0.551
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	23	8.8	14	19
	Exchangeable Calcium (kg/ha)		10,404	3,962	6,197	8,458
	Exchangeable Calcium (mg/kg)		4,645	1,769	2,767	3,776
	Exchangeable Magnesium (cmol+/kg)		9.1	8.6	11	10
	Exchangeable Magnesium (kg/ha)		2,483	2,338	3,052	2,743
	Exchangeable Magnesium (mg/kg)		1,109	1,044	1,363	1,225
	Exchangeable Potassium (cmol+/kg)		1.2	1.4	1.6	1.2
	Exchangeable Potassium (kg/ha)		1,066	1,254	1,412	1,008
	Exchangeable Potassium (mg/kg)		476	560	630	450
	Exchangeable Sodium (cmol+/kg)		3.4	3.0	3.8	2.0
	Exchangeable Sodium (kg/ha)		1,776	1,558	1,961	1,020
	Exchangeable Sodium (mg/kg)		793	696	876	455
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	0.02	0.02	0.02
	Exchangeable Aluminium (kg/ha)		3.5	4.0	3.9	4.4
	Exchangeable Aluminium (mg/kg)		1.6	1.8	1.8	2.0
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	37	22	30	32
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	63	40	45	59
	Magnesium (%)		25	39	37	31
	Potassium (%)		3.3	6.5	5.3	3.6
	Sodium - ESP (%)		9.3	14	13	6.2
	Aluminium (%)		0.05	0.09	0.06	0.07
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.5	1.0	1.2	1.9
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 3/1 Very Dark Gray	7.5YR 4/1 Dark Gray	2.5Y 5/3 Light Olive Brown	2.5Y 4/1 Dark Gray
	Mottles Munsell Colour		..	2.5Y 4/3, 10YR 3/1 Olive Brown, Very Dark Gray	10YR 2/1 Black	10YR 5/6 Yellowish Brown
	Degree of Mottling (%)		..	40, 15	5	10

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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

		Sample 21	Sample 22	Sample 23	Sample 24
	Sample ID:	141 0 - 10	141 20 - 30	141 40 - 50	141 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/21	N6757/22	N6757/23	N6757/24

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
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Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

			Sample 25	Sample 26	Sample 27	Sample 28
		Sample ID:	142 0 - 10	142 20 - 30	142 40 - 50	142 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/25	N6757/26	N6757/27	N6757/28
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	4.47	4.65	4.59	4.51
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.889	0.599	0.674	1.666
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	3.1	2.0	2.7	7.4
	Exchangeable Calcium (kg/ha)		1,407	915	1,228	3,335
	Exchangeable Calcium (mg/kg)		628	409	548	1,489
	Exchangeable Magnesium (cmol+/kg)		4.6	2.4	3.1	7.5
	Exchangeable Magnesium (kg/ha)		1,263	650	841	2,054
	Exchangeable Magnesium (mg/kg)		564	290	376	917
	Exchangeable Potassium (cmol+/kg)		0.69	0.59	0.57	1.1
	Exchangeable Potassium (kg/ha)		605	513	502	936
	Exchangeable Potassium (mg/kg)		270	229	224	418
	Exchangeable Sodium (cmol+/kg)		3.8	1.3	1.3	2.7
	Exchangeable Sodium (kg/ha)		1,969	655	646	1,380
	Exchangeable Sodium (mg/kg)		879	292	289	616
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.61	0.48	0.48	0.73
	Exchangeable Aluminium (kg/ha)		123	96	98	148
	Exchangeable Aluminium (mg/kg)		55	43	44	66
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.42	0.29	0.31	0.79
	Exchangeable Hydrogen (kg/ha)		9.4	6.5	7.0	18
	Exchangeable Hydrogen (mg/kg)		4.2	2.9	3.1	7.9
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	13	7.1	8.5	20
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	24	29	32	37
	Magnesium (%)		35	34	37	37
	Potassium (%)		5.2	8.3	6.8	5.3
	Sodium - ESP (%)		29	18	15	13
	Aluminium (%)		4.6	6.8	5.7	3.6
	Hydrogen (%)		3.2	4.1	3.7	3.9
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	0.68	0.85	0.89	0.98
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	7.5YR 4/3 Brown	7.5YR 4/3 Brown	10YR 5/6 Yellowish Brown	10YR 6/4 Light Yellowish Brown
	Mottles Munsell Colour		..	..	2.5YR 4/6, 10YR 2/1	2.5YR 3/6, 10YR 2/1
	Degree of Mottling (%)		..	..	Red, Black	Dark Red, Black
				..	15, 2	50, 5

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Not Given

			Sample 25	Sample 26	Sample 27	Sample 28
		Sample ID:	142 0 - 10	142 20 - 30	142 40 - 50	142 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/25	N6757/26	N6757/27	N6757/28

Notes:

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Not Given

			Sample 29	Sample 30	Sample 31	Sample 32
		Sample ID:	143 0 - 10	143 20 - 30	143 40 - 50	143 65 - 75
		Crop:	N/G	N/G	N/G	N/G
		Client:	Minesoil	Minesoil	Minesoil	Minesoil
	Parameter	Method reference	N6757/29	N6757/30	N6757/31	N6757/32
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.57	6.67	6.91	7.12
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.077	0.035	0.024	0.021
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	6.0	6.1	3.6	3.8
	Exchangeable Calcium (kg/ha)		2,683	2,716	1,620	1,694
	Exchangeable Calcium (mg/kg)		1,198	1,213	723	756
	Exchangeable Magnesium (cmol+/kg)		3.6	3.6	2.9	2.1
	Exchangeable Magnesium (kg/ha)		988	982	801	579
	Exchangeable Magnesium (mg/kg)		441	439	358	259
	Exchangeable Potassium (cmol+/kg)		1.2	0.98	0.61	0.49
	Exchangeable Potassium (kg/ha)		1,025	856	530	426
	Exchangeable Potassium (mg/kg)		458	382	237	190
	Exchangeable Sodium (cmol+/kg)		0.12	<0.065	0.07	0.26
	Exchangeable Sodium (kg/ha)		62	<33	37	136
	Exchangeable Sodium (mg/kg)		28	<15	17	61
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.05	0.02	0.02	0.03
	Exchangeable Aluminium (kg/ha)		10	3.5	3.8	6.2
	Exchangeable Aluminium (mg/kg)		4.7	1.6	1.7	2.8
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	<0.01	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	<1	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	<1	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	11	11	7.2	6.7
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	55	56	50	56
	Magnesium (%)		33	34	41	32
	Potassium (%)		11	9.1	8.3	7.3
	Sodium - ESP (%)		1.1	0.59	1.0	4.0
	Aluminium (%)		0.47	0.16	0.26	0.46
	Hydrogen (%)		0.00	0.00	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.6	1.7	1.2	1.8
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR 5/3 Brown	7.5YR 4/2 Brown	7.5YR 5/4 Brown	7.5YR 5/4 Brown
	Mottles Munsell Colour		..	..	..	7.5YR 4/3
	Degree of Mottling (%)		..	..	..	Brown
			..	..	..	10

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Not Given

		Sample 29	Sample 30	Sample 31	Sample 32
	Sample ID:	143 0 - 10	143 20 - 30	143 40 - 50	143 65 - 75
	Crop:	N/G	N/G	N/G	N/G
	Client:	Minesoil	Minesoil	Minesoil	Minesoil
Parameter	Method reference	N6757/29	N6757/30	N6757/31	N6757/32

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11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
15. This report is not to be reproduced except in full. Results only relate to the item tested.
16. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions
17. This report was issued on 2/02/2023.

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AGRICULTURAL SOIL ANALYSIS REPORT

32 samples supplied by Minesoils Pty. Ltd. on 27/01/2023. Lab Job No.N6757

Analysis requested by Matt Hemingway. Your Job: MS-078 Wilpinjong Study Area 12 and 3 BSAL

Not Given

	Parameter		Method reference	Heavy Soil	Medium Soil	Light Soil	Sandy Soil
	Sample ID:						
	Crop:						
	Client:			Clay	Clay Loam	Loam	Loamy Sand
				Indicative guidelines - refer to Notes 6 and 8			
	pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.5	6.5	6.3	6.3
	Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.200	0.150	0.120	0.100
	Exchangeable Calcium	(cmol$_+$/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	15.6	10.8	5.0	1.9
		(kg/ha)		7000	4816	2240	840
		(mg/kg)		3125	2150	1000	375
	Exchangeable Magnesium	(cmol$_+$/kg)		2.4	1.7	1.2	0.60
		(kg/ha)		650	448	325	168
		(mg/kg)		290	200	145	75
	Exchangeable Potassium	(cmol$_+$/kg)		0.60	0.50	0.40	0.30
		(kg/ha)		526	426	336	224
		(mg/kg)		235	190	150	100
	Exchangeable Sodium	(cmol$_+$/kg)		0.3	0.26	0.22	0.11
		(kg/ha)		155	134	113	57
		(mg/kg)		69	60	51	25
	Exchangeable Aluminium	(cmol$_+$/kg)	**Inhouse S37 (KCl)	0.6	0.5	0.4	0.2
		(kg/ha)		121	101	73	30
		(mg/kg)		54	45	32	14
	Exchangeable Hydrogen	(cmol$_+$/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.6	0.5	0.4	0.2
		(kg/ha)		13	11	8	3
		(mg/kg)		6	5	4	2
	Effective Cation Exchange Capacity (ECEC) (cmol$_+$/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol$_+$/kg)	20.1	14.3	7.8	3.3
	Calcium (%)		**Base Saturation Calculations - Cation cmol$_+$/kg / ECEC x 100	77.6	75.7	65.6	57.4
	Magnesium (%)			11.9	11.9	15.7	18.1
	Potassium (%)			3.0	3.5	5.2	9.1
	Sodium - ESP (%)			1.5	1.8	2.9	3.3
	Aluminium (%)			6.0	7.1	10.5	12.1
	Hydrogen (%)						
	Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol$_+$/kg)	6.5	6.4	4.2	3.2
	Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	..			
	Mottles Munsell Colour			..			
	Degree of Mottling (%)			..			

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Not Given

			Heavy Soil	Medium Soil	Light Soil	Sandy Soil
		Sample ID:				
		Crop:				
		Client:	Clay	Clay Loam	Loam	Loamy Sand
	Parameter	Method reference	Indicative guidelines - refer to Notes 6 and 8			

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results
10. Conversions for 1 cmol$_c$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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