

Project Name: Re-inventing Australian Agricultural Landscape Systems
Project Code: RAALS **Site ID:** CP399 **Observation ID:** 1
Agency Name: CSIRO Land and Water (ACT)

Site Information

Desc. By:	N.J. McKenzie	Locality:	Munro #2 (Alain's Mistake)
Date Desc.:	01/05/00	Elevation:	No Data
Map Ref.:	GPS S.A. Off	Rainfall:	No Data
Northing/Long.:	6141142 AMG zone: 55	Runoff:	Moderately rapid
Easting/Lat.:	507711 Datum: AGD66	Drainage:	Well drained

Geology

Exposure Type:	Soil pit	Conf. Sub. is Parent. Mat.:	No Data
Geol. Ref.:	No Data	Substrate Material:	Soil pit, 1.7 m deep, Slightly porous, Granodiorite

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	Pattern Type:	Low hills
Morph. Type:	Upper-slope	Relief:	30 metres
Elem. Type:	Hillslope	Slope Category:	Very gently sloped
Slope:	3 %	Aspect:	300 degrees

Surface Soil Condition (dry):

Erosion: Minor (sheet)

Soil Classification

Australian Soil Classification:	Ferric Petroferric Red Kandosol Medium Non-gravelly Clay-loamy Clayey Very deep	Mapping Unit:	N/A
		Principal Profile Form:	N/A

ASC Confidence:
All necessary analytical data are available.

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A1p	0 - 0.11 m	Dark reddish brown (2.5YR3/4-Moist); Yellowish red (5YR5/6-Dry); , 0-0% ; Sandy clay loam, fine sandy; Massive grade of structure; Earthy fabric; Dry; Firm consistence; Field pH 5 (Raupach); Sharp, Smooth change to -
B21	0.11 - 0.38 m	Red (10R4/6-Moist); , 0-0% ; Silty light clay; Massive grade of structure; Earthy fabric; Dry; Very firm consistence; Field pH 6 (Raupach); Diffuse, Smooth change to -
B22	0.38 - 0.65 m	Red (10R4/6-Moist); , 0-0% ; Light clay; Massive grade of structure; Earthy fabric; Dry; Very firm consistence; Field pH 6.5 (Raupach); Gradual, Smooth change to -
B23	0.65 - 1.05 m	Dark red (10R3/6-Moist); , 0-0% ; Light medium clay; Weak grade of structure, 20-50 mm, Polyhedral; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Dry; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Gradual, Smooth change to -
B31	1.05 - 1.5 m	Reddish brown (2.5YR4/4-Moist); Mottles, 7.5YR64, 20-50% , 5-15mm, Distinct; , 10R31; Medium clay; Weak grade of structure, 20-50 mm, Polyhedral; Strong grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Dry; Strong consistence; 0-2%, coarse gravelly, 20-60mm, angular, dispersed, Quartz, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Common (10 - 20 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; Field pH 7 (Raupach); Clear, Smooth change to -
B32	1.5 - 1.65 m	Red (10R5/6-Moist); Mottles, 10R31, 20-50% , 15-30mm, Prominent; Clayey sand; Weak grade of structure, 20-50 mm, Polyhedral; Strong grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Dry; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; Manganiferous pan, Moderately cemented, Continuous, Platy; Ferricrete, Moderately cemented, Continuous, Platy; Field pH 7.5 (Raupach); Clear, Smooth change to -
R	1.65 - m	Rock

Morphological Notes

A1p	Very thin
B31	B3 Yarrabee Parna

Observation Notes

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Profile thinner than Munro 1 (CP398) and drier and tougher; more Fe/Mn at depth; Increasing pedality with depth but primary is massive

Site Notes

Canola stubble; 30% cover

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Laboratory Test Results:

Depth m	pH	1:5 EC dS/m	Ca	Exchangeable Cations			Na Cmol (+)/kg	Exchangeable Acidity	CEC	ECEC	ESP %
				Mg	K						
0 - 0.11	4.4C 5.1A	0.08A	4.07D	1.07	0.55	0.19		8.1L	5.9D	2.35	
0.01 - 0.08											
0.11 - 0.38	5.4C 6.2A	0.04A	4.61D	2.18	0.49	0.19		8.7L	7.5D	2.18	
0.15 - 0.35											
0.38 - 0.65	6.1C 7.1A	0.01A	5.6D	3.85	0.63	0.24		10.7L	10.3D	2.24	
0.45 - 0.65											
0.65 - 1.05	5.9C 7.2A	0.01A	4.19D	4.3	0.85	0.34		10.4L	9.7D	3.27	
0.8 - 1											
1.05 - 1.5	6.4C 7.9A	0.01A	6.77E	7.38	1.02	0.72		18.4B	15.9D	3.91	
1.5 - 1.65	6.8C 8.1A	0.02A	9.99E	10.37	1.26	1.05		24.7B	22.7D	4.25	
1.65 -	7C 8.4A	0.01A	12.95E	12.56	1.51	1.26		31.1B	28.3D	4.05	

Depth m	CaCO3 %	Organic C %	Avail. P mg/kg	Total P %	Total N %	Total K %	Bulk Density Mg/m3	Particle GV	Particle CS	Size FS %	Analysis Silt	Analysis Clay
0 - 0.11 0.01 - 0.08		1.14C			0.09D			0				
							1.48					
							1.48					
							1.50					
							1.44					
							1.49					
0.11 - 0.38 0.15 - 0.35		0.31C			0.04D			0				
							1.49					
							1.58					
							1.57					
0.38 - 0.65 0.45 - 0.65		0.26C			0.03D			2				
							1.44					
							1.39					
							1.42					
0.65 - 1.05 0.8 - 1	<0.1D	0.13C			0.02D			0				
							1.71					
							1.70					
							1.65					
1.05 - 1.5	<0.1D	0.07C			0.02D			0				
1.5 - 1.65	<0.1D	0.05C			0.01D			0				
1.65 -	<0.1D	0.04C			0.01D			0				

Depth m	COLE	Gravimetric/Volumetric Water Contents							K sat	K unsat
		Sat.	0.05 Bar g/g -	0.1 Bar m ³ /m ³	0.5 Bar	1 Bar	5 Bar	15 Bar		

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0.01 - 0.08	0.36F	0.31I	0.15E	0.12F	0.1F	54.6E	8.6C
	0.36F	0.31I	0.13E	0.12F	0.08F	32.2E	11.7C
	0.33F	0.3I	0.16E	0.12F	0.1F	56.6E	10.5C
	0.36F	0.32I	0.16E	0.12F	0.1F	378.4E	10.5C
	0.33F	0.27I	0.16E	0.12F	0.1F	33.2E	21.8C
0.11 - 0.38							
0.15 - 0.35	0.26E	0.24E	0.17E	0.15F	0.13F	174D	63B
	0.28E	0.25E	0.16E	0.15F	0.13F	160.2D	36B
	0.27E	0.25E	0.17E	0.15F	0.14F	108.6D	46B
0.38 - 0.65							
0.45 - 0.65	0.35E	0.32E	0.24E	0.22F	0.21F	474D	31B
	0.37E	0.34E	0.22E	0.22F	0.2F	425.4D	22B
	0.39E	0.36E	0.22E	0.22F	0.21F	120D	39B
0.65 - 1.05							
0.8 - 1	0.32E	0.31E	0.25E	0.26F	0.24F	51D	5.6B
	0.33E	0.3E	0.25E	0.24F	0.23F	43D	53B
		0.31E	0.25E	0.24F	0.24F	67.8D	50B
1.05 - 1.5							
1.5 - 1.65							
1.65 -							

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Laboratory Analyses Completed for this profile

15B2_CA	Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_CEC	CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_K	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_MG	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_NA	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15C1_CA	Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_CEC	CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_K	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_MG	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_NA	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15J_BASES	Sum of Bases
19C1	Carbonates - Collins Calcimeter
2A1	Air-dry moisture content
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
4B2	pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1
6B3	Total organic carbon - high frequency induction furnace, infrared
7A5	Total nitrogen - high frequency induction furnace, thermal conductivity
P10_GRAV	Gravel (%)
P10_S_0.48	0.48 micron (cumulative %) - Sedigraph
P10_S_1	1 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 micron (cumulative %) - Sedigraph
P10_S_15.6	15.6 micron (cumulative %) - Sedigraph
P10_S_2	2 micron (cumulative %) - Sedigraph
P10_S_20	20 micron (cumulative %) - Sedigraph
P10_S_2000	2000 micron (cumulative %) - Sedigraph
P10_S_250	250 micron (cumulative %) - Sedigraph
P10_S_3.9	3.9 micron (cumulative %) - Sedigraph
P10_S_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_53	53 micron (cumulative %) - Sedigraph
P10_S_63	63 micron (cumulative %) - Sedigraph
P10_S_7.8	7.8 micron (cumulative %) - Sedigraph
P3A1	Bulk density - g/cm ³
P3B2VL_1	1 BAR Moisture m ³ /m ³ - Volumetric using disturbed sample on pressure plate
P3B2VL_15	15 BAR Moisture m ³ /m ³ - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m ³ /m ³ - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb003	0.03 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb005	0.05 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb01	0.1 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb03	0.33 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb06	0.66 BAR Moisture m ³ /m ³ - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)

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P3B3VLc001 0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc003 0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc005 0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc01 0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc03 0.3 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc06 0.6 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P4_100DMcK Unsaturated Hydraulic Conductivity - 100mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_10DMcK Unsaturated Hydraulic Conductivity - 10mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_30_LOV Unsaturated Hydraulic Conductivity - 30mm potential Loveday falling head method using 98mm diameter cores
P4_50DMcK Unsaturated Hydraulic Conductivity - 50mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_sat_LOV Saturated Hydraulic Conductivity - Modified (no de-aired water) Loveday falling head method using 98mm diameter cores
P4_sat_McK Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)