Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP308** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	12/03/92	**Elevation:**	No Data
Map Ref.:	1:100000	**Rainfall:**	No Data
Northing/Long.:	6487000 AMG zone: 55	**Runoff:**	Moderately rapid
Easting/Lat.:	562000 Datum: AGD66	**Drainage:**	Well drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	No Data

Land Form

Rel/Slope Class:	No Data	**Pattern Type:**	Meander plain
Morph. Type:	Flat	**Relief:**	No Data
Elem. Type:	Scroll plain	**Slope Category:**	Level
Slope:	%	**Aspect:**	No Data

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

Australian Soil Classification:
Haplic Eutrophic Red Dermosol Medium Non-gravelly Loamy Clayey Deep

Mapping Unit: N/A
Principal Profile Form: Gn4.13

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

Site Disturbance: Limited clearing, for example selective logging

Vegetation: Low Strata - Tussock grass, <0.25m, Sparse. *Species includes - None recorded
Tall Strata - Tree, 12.01-20m, Sparse. *Species includes - Eucalyptus populnea

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.1 m	Dark reddish brown (5YR3/3-Moist); Reddish brown (5YR4/4-Dry); ; Loam; Weak grade of structure, 20-50 mm, Platy; Earthy fabric; Dry; Firm consistence; Field pH 6 (Raupach); Many, fine (1-2mm) roots;
A11	0.1 - 0.16 m	Dark reddish brown (5YR3/3-Moist); Reddish brown (5YR4/4-Dry); ; Sandy clay loam; Weak grade of structure, 20-50 mm, Platy; Earthy fabric; Dry; Very firm consistence; Field pH 7 (Raupach); Many, fine (1-2mm) roots; Clear, Smooth change to -
A12	0.16 - 0.22 m	Reddish brown (5YR4/4-Moist); Yellowish red (5YR4/6-Dry); Mechanical, 5YR34, 20-50% , 5-15mm, Faint; Clay loam; Massive grade of structure; Earthy fabric; Dry; Very firm consistence; Field pH 7.5 (Raupach); Many, very fine (0-1mm) roots; Clear, Smooth change to -
B21	0.22 - 0.4 m	Dark red (2.5YR3/6-Moist); ; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Strong consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 8 (Raupach); Many, very fine (0-1mm) roots; Gradual, Smooth change to -
B22	0.4 - 0.6 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Moderate grade of structure, 50-100 mm, Polyhedral; Rough-ped fabric; Dry; Strong consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 8 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
B31	0.6 - 0.9 m	Dark reddish brown (2.5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 20-50 mm, Polyhedral; Dry; Strong consistence; Many cutans, >50% of ped faces or walls coated, distinct; Field pH 8 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B32	0.9 - 1.3 m	Dark reddish brown (2.5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Polyhedral; Dry; Strong consistence; Many cutans, >50% of ped faces or walls coated, distinct; Field pH 8 (Raupach); Few, very fine (0-1mm) roots;

Morphological Notes

Observation Notes

Good example of Mitchell Well Drained (slight hint of an A2 horizon). Travelling stock route S.W. of ARC Trangie

Site Notes

Mitchell, NSW. (Morph 7)

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m				Cmol (+)/kg				%
0 - 0.1	6A	0.06A	3.8B	0.89	1.1			7A		
0 - 0.15										
0 - 0.15										
0.1 - 0.16	6.67A	0.03A	4.8B	1	0.87	0.01		6.9A		0.14
0.16 - 0.22	7.05A	0.02A	4.1B	0.74	0.44	0.1		6.1A		1.64
0.22 - 0.4	7.53A	0.03A	4.7B	1.1	0.38	0.04		6.6A		0.61
0.22 - 0.4	7.53A	0.03A	4.7B	1.1	0.38	0.04		6.6A		0.61
0.22 - 0.4	7.53A	0.03A	4.7B	1.1	0.38	0.04		6.6A		0.61
0.4 - 0.6	7.74A	0.03A	6.4B	1.9	0.48	0.07		9.2A		0.76
0.6 - 0.9	7.82A	0.03A	8.2B	2.9	0.56	0.19		12.7A		1.50
0.6 - 0.8										
0.6 - 0.8										
0.9 - 1.3	7.75A	0.03A	8.2B	3.1	0.73	0.24		13.6A		1.76

Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	Particle	Size	Analysis		
		C	P	P	N	K	Density	GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.1		1.22B						0				
0 - 0.15							1.55					
							1.54					
							1.53					
							1.61					
0 - 0.15							1.55					
							1.54					
							1.53					
							1.61					
0.1 - 0.16		0.58B					1.51	0				
0.16 - 0.22		0.44B						0				
0.22 - 0.4	0.06B	0.23B					1.68	0				
							1.69					
							1.67					
							1.65					
							1.58					
0.22 - 0.4	0.06B	0.23B					1.68	0				
							1.69					
							1.67					
							1.65					
							1.58					
0.22 - 0.4	0.06B	0.23B					1.68	0				
							1.69					
							1.67					
							1.65					
							1.58					
0.4 - 0.6	0.03B	0.19B						0				
0.6 - 0.9	0.06B	0.14B					1.79	0				
0.6 - 0.8							1.71					
							1.69					
							1.70					
							1.70					

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0.6 - 0.8			1.71	
			1.69	
			1.70	
			1.70	
0.9 - 1.3	0.06B	0.11B		0

Depth	**COLE**	**Gravimetric/Volumetric Water Contents**							**K sat**	**K unsat**
		Sat.	**0.05 Bar**	**0.1 Bar**	**0.5 Bar**	**1 Bar**	**5 Bar**	**15 Bar**		
m					**g/g - m3/m3**				**mm/h**	**mm/h**
0 - 0.1										
0 - 0.15		0.38E	0.31E	0.26E	0.17D		0.11F	0.08F	402.8D	62.1A
		0.37E	0.3E	0.25E	0.17D		0.11F	0.08F		
		0.35E	0.28E	0.25E	0.18D					
		0.33E	0.28E	0.24E	0.18D					
0 - 0.15		0.38E	0.31E	0.26E	0.17D		0.11F	0.08F	402.8D	62.1A
		0.37E	0.3E	0.25E	0.17D		0.11F	0.08F		
		0.35E	0.28E	0.25E	0.18D					
		0.33E	0.28E	0.24E	0.18D					
0.1 - 0.16	0.008B									
0.16 - 0.22										
0.22 - 0.4	0.013B	0.3E	0.25E	0.23E	0.2D		0.16F	0.14F	118.9D	64.5A
		0.32E	0.26E	0.24E	0.2D		0.15F	0.13F		
		0.34E	0.24E	0.22E	0.18D					
		0.35E	0.24E	0.22E	0.18D					
0.22 - 0.4	0.013B	0.3E	0.25E	0.23E	0.2D		0.16F	0.14F	118.9D	64.5A
		0.32E	0.26E	0.24E	0.2D		0.15F	0.13F		
		0.34E	0.24E	0.22E	0.18D					
		0.35E	0.24E	0.22E	0.18D					
0.22 - 0.4	0.013B	0.3E	0.25E	0.23E	0.2D		0.16F	0.14F	118.9D	64.5A
		0.32E	0.26E	0.24E	0.2D		0.15F	0.13F		
		0.34E	0.24E	0.22E	0.18D					
		0.35E	0.24E	0.22E	0.18D					
0.4 - 0.6										
0.6 - 0.9	0.013B									
0.6 - 0.8		0.34E	0.31E	0.3E	0.27D		0.24F	0.21F	23.4D	7.8A
		0.35E	0.32E	0.31E	0.28D		0.23F	0.21F		
		0.34E	0.31E	0.29E	0.26D					
		0.34E	0.3E	0.29E	0.26D					
0.6 - 0.8		0.34E	0.31E	0.3E	0.27D		0.24F	0.21F	23.4D	7.8A
		0.35E	0.32E	0.31E	0.28D		0.23F	0.21F		
		0.34E	0.31E	0.29E	0.26D					
		0.34E	0.3E	0.29E	0.26D					
0.9 - 1.3										

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Laboratory Analyses Completed for this profile

15A2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_CEC	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
19B1	Carbonates - manometric
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A1	Chloride - 1:5 soil/water extract, potentiometric titration
6B2	Total organic carbon - high frequency induction furnace, volumetric
P10_GRAV	Gravel (%)
P10_S_0.20	0.20 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 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 (cumlative %) - Sedigraph
P10_S_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_63	63 micron (cumulative %) - Sedigraph
P3A1	Bulk density - g/cm3
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m3/m3 - 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 m3/m3 - 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 m3/m3 - 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 m3/m3 - 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)
P3B3VLb05	0.5 BAR Moisture m3/m3 - 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)
P3B3VLbSAT	Saturated Moisture m3/m3 - 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)
P4_50_McK	Unsaturated Hydraulic Conductivity - 50mm potential (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_sat_McK	Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P5_LS_MOD	Modified linear shrinkage (McKenzie, Jacquier and Ringrose-Voase, AJSR, 1994, 32, 931-8)