Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP323** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	02/11/92	**Elevation:**	1033 metres
Map Ref.:	Sheet No. : 9437-111-N 1:25000	**Rainfall:**	2000
Northing/Long.:	6640200 AMG zone: 56	**Runoff:**	Very slow
Easting/Lat.:	460700 Datum: AGD66	**Drainage:**	Rapidly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	Soil pit, 1.3 m deep,Trachyte

Land Form

Rel/Slope Class:	Rolling low hills 30-90m 10-32%	**Pattern Type:**	No Data
Morph. Type:	Upper-slope	**Relief:**	40 metres
Elem. Type:	No Data	**Slope Category:**	Moderately inclined
Slope:	10 %	**Aspect:**	135 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Haplic Dystrophic Brown Ferrosol Thin Non-gravelly Clay-loamy Clayey Deep

Mapping Unit: N/A
Principal Profile Form: Gn2.42

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

Site Disturbance: Complete clearing. Pasture, native or improved, cultivated at some stage

Vegetation: Low Strata - Sod grass, 0.26-0.5m, Closed or dense. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.1 m	Brown (10YR4/3-Moist); , 0-0% ; Clay loam; Strong grade of structure, 5-10 mm, Granular; Earthy fabric; Moderately moist; Weak consistence; Field pH 6.5 (Raupach); Abundant, medium (2-5mm) roots; Gradual, Smooth change to -
A3	0.1 - 0.2 m	Strong brown (7.5YR4/6-Moist); , 0-0% ; Clay loam; Moderate grade of structure, 5-10 mm, Granular; Moderate grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Weak consistence; Many, very fine (0-1mm) roots; Diffuse, Smooth change to -
B1	0.2 - 0.3 m	Strong brown (7.5YR4/6-Moist); , 0-0% ; Clay loam; Moderate grade of structure, 5-10 mm, Granular; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Weak consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Many, very fine (0-1mm) roots; Diffuse, Smooth change to -
B21	0.3 - 0.5 m	Strong brown (7.5YR4/6-Moist); , 0-0% ; Light clay; Moderate grade of structure, 5-10 mm, Granular; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Firm consistence; Few cutans, <10% of ped faces or walls coated, faint; Many, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.5 - 0.75 m	Yellowish red (5YR4/6-Moist); , 0-0% ; Light clay; Weak grade of structure, 20-50 mm, Polyhedral; Rough-ped fabric; Moderately moist; Firm consistence; 2-10%, coarse gravelly, 20-60mm, subangular, undisturbed, Trachyte, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B23	0.75 - 0.95 m	Strong brown (7.5YR5/6-Moist); , 0-0% ; Light clay; Weak grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moderately moist; Firm consistence; Common cutans, 10-50% of ped faces or walls coated, faint; Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B3	0.95 - 1.2 m	Strong brown (7.5YR5/6-Moist); , 0-0% ; Light clay; Weak grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moderately moist; Firm consistence; 0-2%, medium gravelly, 6-20mm, subangular, undisturbed, Trachyte, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, faint; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
BC	1.2 - m	, 0-0% ;

Morphological Notes

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Meldrum series of McArthur. Very gradational and porous profile developed on trachyte (weathered at 1.3m but profile contains floaters). In pasture (rye and sub-clover) for 8 years, formerly used for spuds

Site Notes

Fernbrook, Dorrigo. 25m from Armidale-Dorrigo road fence at intersection of Deervale Rd (Eastern Intersection) (Morph 22)

Observation Notes

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Laboratory Test Results:

Depth m	pH	1:5 EC dS/m	Exchangeable Cations Ca	 Mg	 K	 Na Cmol (+)/kg	Exchangeable Acidity	CEC	ECEC	ESP %
0 - 0.05	5.26A	0.13A	3.5B	1.3	0.73	0.06		10.8A		0.56
0.05 - 0.1	5.11A	0.07A	1.5B	0.55	0.27	0.05		7.5A		0.67
0 - 0.2										
0 - 0.2										
0.1 - 0.2	5.05A	0.04A	0.74B	0.28	0.15	0.02		5.7A		0.35
0.2 - 0.3	5.18A	0.03A	0.74B	0.27	0.1	0.04		4.3A		0.93
0.3 - 0.5	5.59A	0.02A	1.6B	0.28	0.09	0.06		4.3A		1.40
0.3 - 0.5	5.59A	0.02A	1.6B	0.28	0.09	0.06		4.3A		1.40
0.3 - 0.5	5.59A	0.02A	1.6B	0.28	0.09	0.06		4.3A		1.40
0.5 - 0.75	5.67A	0.02A	1.4B	0.26	0.06	0.08		3.4A		2.35
0.5 - 0.7										
0.5 - 0.7										
0.75 - 0.95	5.22A	0.02A	0.7B	0.12	0.03	0.08		2.8A		2.86
0.95 - 1.2	5.15A	0.02A	0.6B	0.11	0.04	0.06		2.8A		2.14
1.2 -										

Depth m	CaCO3 %	Organic C %	Avail. P mg/kg	Total P %	Total N %	Total K %	Bulk Density Mg/m3	Particle Size Analysis GV	 CS	 FS %	 Silt	 Clay
0 - 0.05		9.29B						3				
0.05 - 0.1		6.09B					0.98	2				
0 - 0.2							1.02					
							1.01					
							0.99					
							0.89					
0 - 0.2							1.02					
							1.01					
							0.99					
							0.89					
0.1 - 0.2		4.44B						1				
0.2 - 0.3		3.11B					0.98	0				
0.3 - 0.5		2B					1.04	0				
							1.10					
							1.10					
							1.08					
							1.07					
0.3 - 0.5		2B					1.04	0				
							1.10					
							1.10					
							1.08					
							1.07					
0.3 - 0.5		2B					1.04	0				
							1.10					
							1.10					
							1.08					
							1.07					
0.5 - 0.75		1.36B						2				
0.5 - 0.7							1.11					
							1.07					
0.5 - 0.7							1.11					
							1.07					

0.75 - 0.95	0.66B	2
0.95 - 1.2	0.43B	
1.2 -		

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 - 0.05										
0.05 - 0.1	0.042B									
0 - 0.2		0.59E	0.58E	0.57E	0.46D		0.33F	0.32F	136.9D	15.7A
		0.56E	0.55E	0.54E	0.45D		0.28F	0.27F		
		0.59E	0.57E	0.56E	0.45D					
		0.59E	0.56E	0.54E	0.44D					
0 - 0.2		0.59E	0.58E	0.57E	0.46D		0.33F	0.32F	136.9D	15.7A
		0.56E	0.55E	0.54E	0.45D		0.28F	0.27F		
		0.59E	0.57E	0.56E	0.45D					
		0.59E	0.56E	0.54E	0.44D					
0.1 - 0.2										
0.2 - 0.3	0.038B									
0.3 - 0.5	0.025B	0.6E	0.55E	0.53E	0.49D		0.31F	0.29F	486.2D	204.3A
		0.57E	0.53E	0.51E	0.47D		0.3F	0.28F		
		0.55E	0.5E	0.49E	0.45D					
		0.55E	0.5E	0.49E	0.45D					
0.3 - 0.5	0.025B	0.6E	0.55E	0.53E	0.49D		0.31F	0.29F	486.2D	204.3A
		0.57E	0.53E	0.51E	0.47D		0.3F	0.28F		
		0.55E	0.5E	0.49E	0.45D					
		0.55E	0.5E	0.49E	0.45D					
0.3 - 0.5	0.025B	0.6E	0.55E	0.53E	0.49D		0.31F	0.29F	486.2D	204.3A
		0.57E	0.53E	0.51E	0.47D		0.3F	0.28F		
		0.55E	0.5E	0.49E	0.45D					
		0.55E	0.5E	0.49E	0.45D					
0.5 - 0.75										
0.5 - 0.7		0.55E	0.5E	0.48E	0.45D		0.35F	0.29F	37.3D	19A
		0.57E	0.53E	0.51E	0.48D		0.32F	0.3F		
0.5 - 0.7		0.55E	0.5E	0.48E	0.45D		0.35F	0.29F	37.3D	19A
		0.57E	0.53E	0.51E	0.48D		0.32F	0.3F		
0.75 - 0.95										
0.95 - 1.2										
1.2 -										

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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
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)