Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP302** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	14/11/91	**Elevation:**	No Data
Map Ref.:	1:250000	**Rainfall:**	No Data
Northing/Long.:	136.24	**Runoff:**	No Data
Easting/Lat.:	-33.95	**Drainage:**	No Data

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:**	No Data
Morph. Type:	Simple-slope	**Relief:**	No Data
Elem. Type:	No Data	**Slope Category:**	No Data
Slope:	4 %	**Aspect:**	No Data

Surface Soil Condition (dry): Soft

Erosion: Moderate (wind);

Soil Classification

Australian Soil Classification:
Supracalcic Mesonatric Yellow Sodosol
ASC Confidence:
No analytical data are available but confidence is fair.

Mapping Unit: N/A
Principal Profile Form: Dy5.43
Great Soil Group: N/A

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.15 m	Yellowish brown (10YR5/4-Moist); ; Loamy sand; Single grain grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Loose consistence; Field pH 7.5 (Raupach); Common, medium (2-5mm) roots; Abrupt, Wavy change to -
A2	0.15 - 0.2 m	Very pale brown (10YR7/4-Moist); Very pale brown (10YR8/4-Dry); Mechanical, 10YR54; Loamy sand; Single grain grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Very weak consistence; Field pH 7.5 (Raupach); Common, fine (1-2mm) roots; Sharp, Tongued
B21	0.2 - 0.35 m	Brownish yellow (10YR6/6-Moist); ; Sandy clay loam; Moderate grade of structure, 200-500 mm, Columnar; Rough-ped fabric; Fine, (0 - 5) mm crack; Very strong consistence; Field pH 8.5 (Raupach); Common, fine (1-2mm) roots; Abrupt, Smooth change to -
B22k	0.35 - 0.4 m	Reddish yellow (7.5YR6/6-Moist); ; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Calcareous, , Concretions; Soil matrix is Very highly calcareous; Field pH 8.5 (Raupach); Common, medium (2-5mm) roots; Gradual, Smooth change to -
B31	0.4 - 0.7 m	Reddish yellow (7.5YR6/6-Moist); Very pale brown (10YR8/4-Dry); , 10YR76, 20-50% , 30-mm, Distinct; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Calcareous, , Soft segregations; Soil matrix is Very highly calcareous; Field pH 9 (Raupach); Few, very fine (0-1mm) roots; Gradual, Smooth change to -
B32	0.7 - 1 m	Reddish yellow (7.5YR6/8-Moist); , 7.5YR66, 20-50% , 30-mm, Distinct; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Calcareous, , Soft segregations; Soil matrix is Very highly calcareous; Field pH 9 (Raupach); Few, very fine (0-1mm) roots;
B32	1 - 1.3 m	Reddish yellow (7.5YR6/8-Moist); , 7.5YR66, 20-50% , 30-mm, Distinct; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Very firm consistence; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Calcareous, , Soft segregations; Soil matrix is Very highly calcareous; Field pH 9 (Raupach); Few, very fine (0-1mm) roots;

Morphological Notes

B22k Invading CO3 coating between peds.

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Observation Notes

Site Notes

Wharminda (Morph 1)

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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 - 0.15	6.95A	0.1A	2.7B	0.8	0.19	0.05		2.3A		2.17
0 - 0.17										
0 - 0.17										
0.15 - 0.2	7.21A	0.09A	1.8B	0.51	0.14	0.16		1.9A		8.42
0.2 - 0.35	8.65A	0.23A	3.6B	4.8	1.1	2.7		12.2A		22.13
0.2 - 0.37										
0.2 - 0.37										
0.35 - 0.4	9.42A	0.57A	5.2B	7.3	1.9	4.9		15.4A		31.82
0.4 - 0.7	9.8A	0.76A	2.4B	5	1.3	5.5		10.3A		53.40
0.7 - 1	9.94A	0.83A	1B	2.9	0.98	4.6		6.5A		70.77
1 - 1.3	9.59A	1.26A	1.7B	5.7	1.9	8.5		14.3A		59.44

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis				
								GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.15		0.71B					1.36	0				
0 - 0.17							1.56					
							1.58					
							1.65					
							1.66					
0 - 0.17							1.56					
							1.58					
							1.65					
							1.66					
0.15 - 0.2		0.42B						0				
0.2 - 0.35	0.03B	0.28B					1.55	0				
0.2 - 0.37							1.40					
							1.39					
							1.31					
							1.32					
0.2 - 0.37							1.40					
							1.39					
							1.31					
							1.32					
0.35 - 0.4	15.2B	0.14B						0				
0.4 - 0.7	22.7B	0.01B						0				
0.7 - 1	9.58B	0.01B						0				
1 - 1.3	14.1B	0.01B						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 - 0.15	0B									
0 - 0.17		0.38E	0.22E	0.1E	0.09D		0.04F	0.05F	136D	146A
		0.38E	0.27E	0.09E	0.08D		0.06F	0.05F		
		0.37E	0.3E	0.1E	0.06D					
		0.36E	0.26E	0.1E	0.06D					

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0 - 0.17		0.38E	0.22E	0.1E	0.09D	0.04F	0.05F	136D	146A
		0.38E	0.27E	0.09E	0.08D	0.06F	0.05F		
		0.37E	0.3E	0.1E	0.06D				
		0.36E	0.26E	0.1E	0.06D				
0.15 - 0.2									
0.2 - 0.35	0.017B								
0.2 - 0.37		0.4E	0.38E	0.37E	0.32D	0.3F	0.25F	73.3D	14.2A
		0.39E	0.37E	0.36E	0.31D	0.22F	0.2F		
		0.4E	0.36E	0.34E	0.29D				
		0.38E	0.35E	0.33E	0.28D				
0.2 - 0.37		0.4E	0.38E	0.37E	0.32D	0.3F	0.25F	73.3D	14.2A
		0.39E	0.37E	0.36E	0.31D	0.22F	0.2F		
		0.4E	0.36E	0.34E	0.29D				
		0.38E	0.35E	0.33E	0.28D				
0.35 - 0.4									
0.4 - 0.7									
0.7 - 1									
1 - 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_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 (cumlative %) - 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/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)