

**Project Name:** SOIL STRUCTURE & MANAGEMENT  
**Project Code:** SSM **Site ID:** SSM130 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (ACT)

#### Site Information

<b>Desc. By:</b> G.M. Bowman	<b>Locality:</b>
<b>Date Desc.:</b> 25/02/91	<b>Elevation:</b> 160 metres
<b>Map Ref.:</b> Sheet No. : 8226 1:100000	<b>Rainfall:</b> No Data
<b>Northing/Long.:</b> 6056300 AMG zone: 55	<b>Runoff:</b> Slow
<b>Easting/Lat.:</b> 462600 Datum: AGD66	<b>Drainage:</b> Poorly drained

#### Geology

<b>ExposureType:</b> Soil pit	<b>Conf. Sub. is Parent. Mat.:</b> Probable
<b>Geol. Ref.:</b> Qrt	<b>Substrate Material:</b> No Data

#### Land Form

<b>Rel/Slope Class:</b> No Data	<b>Pattern Type:</b> Alluvial plain
<b>Morph. Type:</b> Flat	<b>Relief:</b> No Data
<b>Elem. Type:</b> Valley flat	<b>Slope Category:</b> No Data
<b>Slope:</b> 3 %	<b>Aspect:</b> No Data

**Surface Soil Condition (dry):** Recently cultivated

#### Erosion:

#### Soil Classification

<b>Australian Soil Classification:</b>	<b>Mapping Unit:</b> N/A
Subnatic Red Sodosol	<b>Principal Profile Form:</b> Dr2.13
<b>ASC Confidence:</b>	<b>Great Soil Group:</b> Red-brown earth
Confidence level not specified	

**Site Disturbance:** Cultivation. Rainfed

#### Vegetation:

**Surface Coarse Fragments:** No surface coarse fragments

#### Profile Morphology

A11p	0 - 0.1 m	Brown (7.5YR4/4-Moist); ; Silty clay loam; Weak grade of structure, 2-5 mm, Polyhedral; >500 mm, Columnar; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Loose consistence; Non-plastic; Non-sticky; Sharp, Smooth change to -
A12p	0.1 - 0.21 m	Brown (7.5YR4/4-Moist); Yellowish brown (10YR5/4-Dry); ; Sandy loam; Weak grade of structure, 2-5 mm, Platy; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Strong consistence; Non-plastic; Non-sticky; Few (2 - 10 %), Organic (humified), Coarse (6 - 20 mm), Fragments, weak, segregations; Cultivation pan, Strongly cemented, Continuous, Platy; Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Clear, Irregular change to -
B21	0.21 - 0.55 m	Reddish brown (5YR4/4-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Moderately plastic; Moderately sticky; Common cutans, 10-50% of ped faces or walls coated, faint; Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Diffuse change to -
B22	0.55 - 1 m	Yellowish red (5YR4/6-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moist; Very firm consistence; Very plastic; Moderately sticky; Common cutans, 10-50% of ped faces or walls coated, faint; Few (2 - 10 %), Calcareous, Medium (2 -6 mm), Nodules, strong, segregations; Soil matrix is Slightly

#### Morphological Notes

A11p	Ploughed surface. Surface horizons	inverted by mouldboard plough - crop	turned in.
A12p	Plough pan - very hard but contains O.M.pieces.		
B21	B horizon on classic red-brown earth.	Quite moist. Live earthworm.	
B22	BCa horizon on red-brown earth.	Very moist.	

#### Observation Notes

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50m from Eastern fence. 300m from south fence. Neighbour's paddock to Wolfenden via Rand NSW. Paddock in under fallow, last cultivated in November 1990. Previously mouldboard ploughed and abused.

**Site Notes**

ALLANDALE, (WOLFENDEN) VIA RAND NSW

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**Laboratory Test Results:**

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Na	Acidity			%
							(+)/kg			
0 - 0.08	4.71B	0.35A	2.68J	2.09	0.59	0.43		6.77I		6.35
0.01 - 0.085										
0.08 - 0.15	4.45B	0.115A	2.56J	1.77	0.4	0.36		6.05I		5.95
0.2 - 0.3	6.33B	0.135A	6.14J	7.45	0.53	1.61		14.62I		11.01
0.21 - 0.285										
0.7 - 0.8	7.59B	0.771A	6.97J	13.44	0.44	4.68		20.03I		23.36

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**Laboratory Analyses Completed for this profile**

13A1_AL	Oxalate-extractable aluminium
13A1_FE	Oxalate-extractable iron
13A1_MN	Oxalate-extractable manganese
13A1_SI	Oxalate-extractable silicon
13C1_AL	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_FE	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_MN	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_SI	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
14H1_CA	Soluble bases/SE (Ca,Mg,K,Na)
14H1_K	Soluble bases/SE (Ca,Mg,K,Na)
14H1_MG	Soluble bases/SE (Ca,Mg,K,Na)
14H1_NA	Soluble bases/SE (Ca,Mg,K,Na)
15F1_CA	Exchangeable bases by 0.01M silver-thiourea (AgTU)+, no pretreatment for soluble salts
15F1_K	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F1_MG	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F1_NA	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F3	CEC by 0.01M silver-thiourea (AgTU)+
15N1	Exchangeable sodium percentage (ESP)
3A1	EC of 1:5 soil/water extract
4B1	pH of 1:5 soil/0.01M calcium chloride extract - direct
6B3	Total organic carbon - high frequency induction furnace, infrared
MIN_EC	Exchange Capacity - Minerology
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method
P3A1	Bulk density - g/cm <sup>3</sup>
P3B3VLc001	0.01 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc003	0.03 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc005	0.05 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc01	0.1 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc03	0.3 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLcSAT	Saturated Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLd06	0.6 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd1	1 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd15	15 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd3	3 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd5	5 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P6_LP	Dispersion Index (Loveday and Pyle, 1973)
PWS20-63	20-63 micron fraction (%) - Wet Sieving after chemical dispersion
PWS212-425	212-425 micron fraction (%) - Wet Sieving after chemical dispersion
PWS425-1mm	425-1000 micron fraction (%) - Wet Sieving after chemical dispersion
PWS63-212	63-212 micron fraction (%) - Wet Sieving after chemical dispersion
XRD_C_An	Anatase - X-Ray Diffraction
XRD_C_Hm	Hematite - X-Ray Diffraction
XRD_C_Il	Illite - X-Ray Diffraction
XRD_C_Is	Interstratified clay minerals - X-Ray Diffraction
XRD_C_Ka	Kaolin - X-Ray Diffraction
XRD_C_Qz	Quartz - X-Ray Diffraction