

**Project Name:** SOIL STRUCTURE & MANAGEMENT  
**Project Code:** SSM **Site ID:** SSM33 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (ACT)

**Site Information**

<b>Desc. By:</b>	B. Murphy	<b>Locality:</b>	
<b>Date Desc.:</b>	24/04/91	<b>Elevation:</b>	442 metres
<b>Map Ref.:</b>	Sheet No. : 8628	<b>Rainfall:</b>	No Data
<b>Northing/Long.:</b>	6178590 AMG zone: 55	<b>Runoff:</b>	Moderately rapid
<b>Easting/Lat.:</b>	640310 Datum: AGD66	<b>Drainage:</b>	Moderately well drained

**Geology**

<b>ExposureType:</b>	Undisturbed soil core	<b>Conf. Sub. is Parent. Mat.:</b>	No Data
<b>Geol. Ref.:</b>	Dgy	<b>Substrate Material:</b>	No Data

**Land Form**

<b>Rel/Slope Class:</b>	No Data	<b>Pattern Type:</b>	Low hills
<b>Morph. Type:</b>	Ridge	<b>Relief:</b>	No Data
<b>Elem. Type:</b>	Hillcrest	<b>Slope Category:</b>	No Data
<b>Slope:</b>	3 %	<b>Aspect:</b>	225 degrees

**Surface Soil Condition (dry):** Soft

**Erosion:**

**Soil Classification**

<b>Australian Soil Classification:</b>		<b>Mapping Unit:</b>	N/A
Hypercalcic Red Chromosol		<b>Principal Profile Form:</b>	Dy2.23
<b>ASC Confidence:</b>		<b>Great Soil Group:</b>	Red-brown earth
Confidence level not specified			

**Site Disturbance:** No effective disturbance other than grazing by hoofed animals

**Vegetation:**

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

**Profile Morphology**

O	0 - 0.05 m	Organic Layer; ;
A1	0.05 - 0.2 m	Dark reddish brown (5YR2/2-Moist); ; Coarse sandy clay loam; Weak grade of structure, 5-10 mm, Subangular blocky; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Many (>5 per 100mm2) Very fine (0.075-1mm) macropores, Common (1-5 per 100mm2) Fine (1-2mm) macropores, Many (>5 per 100mm2) Medium (2-5mm) macropores, Few (<1 per 100mm2) Coarse (>5mm) macropores, Moderately moist; Loose consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, angular, dispersed, Quartz, coarse fragments; 2-10%, fine gravelly, 2-6mm, angular, dispersed, coarse fragments; Gradual change to -
A2	0.2 - 0.31 m	Reddish yellow (5YR6/6-Moist); Reddish yellow (7.5YR7/6-Dry); Biological mixing, 20-50% , Distinct; Biological mixing, 2-10% , Distinct; Coarse sandy clay loam; Weak grade of structure, 10-20 mm, Subangular blocky; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Common (1-5 per 100mm2) Fine (1-2mm) macropores, Many (>5 per 100mm2) Medium (2-5mm) macropores, Few (<1 per 100mm2) Coarse (>5mm) macropores, Dry; Very weak consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, angular, dispersed, Quartz, coarse fragments; 2-10%, fine gravelly, 2-6mm, angular, dispersed, coarse fragments; Gradual change to -
AB	0.31 - 0.36 m	Yellowish red (5YR5/6-Moist); ; Medium heavy clay; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Dry; Weak consistence; Very plastic; Normal plasticity; Slightly sticky; 2-10%, medium gravelly, 6-20mm, subangular, dispersed, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Few, fine (1-2mm) roots; Common, very fine (0-1mm) roots; Gradual change to -
B21	0.36 - 0.56 m	Red (2.5YR5/6-Moist); ; Medium heavy clay; Strong grade of structure, 200-500 mm, Prismatic; 100-200 mm, Columnar; Smooth-ped fabric; Fine, (0 - 5) mm crack; Coarse, (10 - 20) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Dry; Weak consistence; Very plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Soil matrix is Slightly calcareous; Gradual change to -

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- B22      0.56 - 0.7 m      Reddish yellow (7.5YR6/6-Moist); Substrate influence, 20-50% , Distinct; Medium heavy clay; Strong grade of structure, 200-500 mm, Prismatic; 100-200 mm, Columnar; Smooth-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, Few (<1 per 100mm<sup>2</sup>) Fine (1-2mm) macropores, Dry; Firm consistence; Very plastic; Normal plasticity; Moderately sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Soil matrix is Slightly calcareous;
- B3      0.7 - 0.95 m      Brownish yellow (10YR6/6-Moist); Substrate influence, 2-10% , Distinct; Strong grade of structure, 200-500 mm, Subangular blocky; 100-200 mm, Columnar; Smooth-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, Few (<1 per 100mm<sup>2</sup>) Fine (1-2mm) macropores, Very firm consistence; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Field pH 9 (Raupach);

**Morphological Notes**

A1      Much worm activity with A1 material deposited in      A2

**Observation Notes**

**Site Notes**

HARDEN EMU Paddock - WOODLAND

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[illegible]

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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
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method
P3A1	Bulk density - g/cm3
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
P3B3VLcSAT	Saturated Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLd06	0.6 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd1	1 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd15	15 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd3	3 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd5	5 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P6_LP	Dispersion Index (Loveday and Pyle, 1973)
PWS1-2mm	1000-2000 micron fraction (%) - Wet Sieving after chemical dispersion
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