

**Project Name:** SOIL STRUCTURE & MANAGEMENT  
**Project Code:** SSM **Site ID:** SSM31 **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>	27/03/91	<b>Elevation:</b>	510 metres
<b>Map Ref.:</b>	Sheet No. : 8629 1:100000	<b>Rainfall:</b>	No Data
<b>Northing/Long.:</b>	6182000 AMG zone: 55	<b>Runoff:</b>	Rapid
<b>Easting/Lat.:</b>	638000 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>	Upper-slope	<b>Relief:</b>	No Data
<b>Elem. Type:</b>	Hillslope	<b>Slope Category:</b>	No Data
<b>Slope:</b>	7 %	<b>Aspect:</b>	225 degrees

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

**Erosion:** Minor or present (wind); No scalding (scald)  
Minor (sheet) No wave erosion (wave) No rill  
erosion (rill) No mass movement (mass) No gully  
erosion (gully) No stream bank erosion (stbank)  
No tunnel erosion (tunnel)

#### Soil Classification

<b>Australian Soil Classification:</b>	<b>Mapping Unit:</b>	N/A
Eutrophic Red Kandosol	<b>Principal Profile Form:</b>	Gn2.112
<b>ASC Confidence:</b>	<b>Great Soil Group:</b>	Red earth
Confidence level not specified		

**Site Disturbance:** Cultivation. Rainfed

#### Vegetation:

**Surface Coarse Fragments:** 0-2%, fine gravelly, 2-6mm, subangular, Quartz; No surface coarse fragments; No surface coarse fragments

#### Profile Morphology

A1	0 - 0.05 m	Reddish brown (5YR4/3-Moist); ; Coarse sandy loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Medium (2-5mm) macropores, Common (1-5 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Coarse (>5mm) macropores, Dry; Very weak consistence; Non-plastic; Normal plasticity; Non-sticky; 0-2%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Many, very fine (0-1mm) roots; Common, fine (1-2mm) roots; Few, medium (2-5mm) roots; Gradual change to -
A2	0.05 - 0.18 m	Reddish brown (5YR4/4-Moist); Pinkish grey (7.5YR7/3-Dry); ; Coarse sandy loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Many (>5 per 100mm2) Medium (2-5mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Very firm consistence; Non-plastic; Normal plasticity; Non-sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Common, very fine (0-1mm) roots; Clear change to -
B21	0.18 - 0.3 m	Reddish brown (5YR4/4-Moist); ; Medium sandy clay loam; Weak grade of structure, 50-100 mm, Subangular blocky; 50-100 mm, Angular blocky; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Strong consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Few cutans, <10% of ped faces or walls coated; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, segregations;Very few (0 - 2 %), Ferromanganiferous, Coarse (6 - 20 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Gradual change to -

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B22	0.3 - 0.5 m	Brown (7.5YR5/4-Moist); ; Medium sandy clay loam; Weak grade of structure, 50-100 mm, Subangular blocky; 50-100 mm, Angular blocky; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Very firm consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Few cutans, <10% of ped faces or walls coated; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, segregations;Very few (0 - 2 %), Ferromanganiferous, Coarse (6 - 20 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Gradual change to -
B31	0.5 - 0.7 m	Brownish yellow (10YR6/6-Moist); Substrate influence, 10R36, 2-10% , Prominent; Light medium clay; Moderate grade of structure, 50-100 mm, Prismatic; 50-100 mm, Angular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Firm consistence; Moderately plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Many cutans, >50% of ped faces or walls coated; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, segregations;Very few (0 - 2 %), Ferromanganiferous, Coarse (6 - 20 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Gradual change to -
B32	0.7 - 0.9 m	Brownish yellow (10YR6/6-Moist); Substrate influence, 10R36, 10-20% , Prominent; Light medium clay; Moderate grade of structure, 100-200 mm, Prismatic; 50-100 mm, Angular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Dry; Firm consistence; Moderately plastic; Normal plasticity; Slightly sticky; 2-10%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; Many cutans, >50% of ped faces or walls coated; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, segregations;Very few (0 - 2 %), Ferromanganiferous, Coarse (6 - 20 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots;

#### Morphological Notes

A2 Beetle present, curled up

B22 Large channel left by tree root. Now filled with soil, friable 1-2mm aggregates

#### Observation Notes

##### Site Notes

HARDEN HUME DD Paddock

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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