Project Name: **SOIL STRUCTURE & MANAGEMENT**
Project Code: **SSM** **Site ID:** **SSM18** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	B. Murphy	**Locality:**	
Date Desc.:	20/02/91	**Elevation:**	290 metres
Map Ref.:	Sheet No. : 8630 1:50000	**Rainfall:**	No Data
Northing/Long.:	6259400 AMG zone: 55	**Runoff:**	Slow
Easting/Lat.:	647600 Datum: AGD66	**Drainage:**	Well drained

Geology

ExposureType:	Undisturbed soil core	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	Cza	**Substrate Material:**	Unconsolidated material (unidentified)

Land Form

Rel/Slope Class:	No Data	**Pattern Type:**	Terrace (alluvial)
Morph. Type:	Flat	**Relief:**	No Data
Elem. Type:	Plain	**Slope Category:**	No Data
Slope:	1 %	**Aspect:**	0 degrees

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

Australian Soil Classification:
Eutrophic Red Dermosol
ASC Confidence:
Confidence level not specified

Mapping Unit: N/A
Principal Profile Form: Gn2.35
Great Soil Group: Red earth

Site Disturbance: Cultivation. Irrigated, past or present

Vegetation:

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

Profile Morphology

A1	0 - 0.1 m	Reddish brown (5YR4/4-Moist); Mechanical, 5YR56, 2-10% , Faint; Loam; Weak grade of structure, 20-50 mm, Subangular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Dry; Weak consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Few, very fine (0-1mm) roots; Clear change to -
A2	0.1 - 0.2 m	Yellowish red (5YR5/6-Moist); Light reddish brown (5YR6/4-Dry); Mechanical, 5YR44, 2-10% , Faint; Clay loam; Weak grade of structure, 20-50 mm, Subangular blocky; Earthy fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Moderately moist; Weak consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Clear change to -
B21	0.2 - 0.3 m	Red (2.5YR5/6-Moist); , 2-10% , Faint; Clay loam; Weak grade of structure, 20-50 mm, Subangular blocky; 100-200 mm, Columnar; Earthy fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Very weak consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Diffuse change to -
B22	0.3 - 0.53 m	Red (2.5YR4/6-Moist); , 2-10% , Faint; Light medium clay; Moderate grade of structure, 20-50 mm, Subangular blocky; 100-200 mm, Columnar; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Moderately moist; Very weak consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Soft segregations, weak, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Gradual change to -
B23	0.53 - 0.7 m	Red (2.5YR5/6-Moist); , 2-10% , Faint; Light clay; Strong grade of structure, 20-50 mm, Subangular blocky; 100-200 mm, Columnar; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Moderately moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Soft segregations, weak, segregations;Few, very fine (0-1mm) roots; Diffuse change to -

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B31	0.7 - 0.9 m	Red (2.5YR4/6-Moist); , 2-10% , Faint; Light clay; Strong grade of structure, 20-50 mm, Subangular blocky; 100-200 mm, Columnar; Rough-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, rounded, dispersed, Quartz, coarse fragments; Many cutans, >50% of ped faces or walls coated, distinct; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Soft segregations, weak, segregations;Few, very fine (0-1mm) roots;

Morphological Notes

B21	Mottle type also biological
B22	Mottle type also biological.
B23	Mottle type also biological.
B31	Mottle type also biological.

Observation Notes

High terrace of alluvial plain

Site Notes

DELAYNEY GYPSUM LUCERNE NO 4

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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 - 0.02	6.23B	0.167A	3.01J	1.97	0.54	0.47		5.97I		7.87
0.01 - 0.085										
0.02 - 0.05	6.15B	0.156A	2.9J	1.47	0.44	0.31		5.15I		6.02
0.05 - 0.1	6.15B	0.125A	3.05J	1.4	0.24	0.28		5.42I		5.17
0.1 - 0.2	5.91B	0.96A	2.51J	1.43	0.27	0.23		5.37I		4.28
0.2 - 0.3	5.87B	0.91A	3.02J	1.87	0.29	0.26		6.19I		4.20
0.21 - 0.285										
0.3 - 0.53										
0.7 - 0.8	6.22B	0.121A	4.5J	3.8	0.18	0.53		7.4I		7.16

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 - 0.02		1.09C									29	13
0.01 - 0.085							1.43					
0.02 - 0.05		0.88C									28	13
0.05 - 0.1		0.87C									29	13
0.1 - 0.2		0.32C									26	20
0.2 - 0.3		0.33C									25	26
0.21 - 0.285							1.49					
0.3 - 0.53												
0.7 - 0.8		0.11C									23	35

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 - 0.02										
0.01 - 0.085										
0.02 - 0.05										
0.05 - 0.1										
0.1 - 0.2										
0.2 - 0.3										
0.21 - 0.285							0.18D	0.14G		
0.3 - 0.53										
0.7 - 0.8										

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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/cm3
P3B3VLd06	0.6 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
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