

# SAND OVER SANDY CLAY ON RUBBLY CALCRETE

**General Description:** *Medium thickness sand over a thin brown sandy clay overlying calcrete*

**Landform:** Flat to gently undulating plain with occasional low sandhills and stony rises.

**Substrate:** Coarse grained lagoonal limestone (Padthaway Formation).

**Vegetation:** Mallee heath



**Type Site:** Site No.: MM093

1:50,000 sheet:	6826-3 (Woods Well)	Hundred:	Field
Annual rainfall:	460 mm	Sampling date:	1992
Landform:	Flat on gently undulating plain		
Surface:	Soft with minor calcrete stone (20-60 mm)		

## Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Very dark greyish brown loose loamy sand. Clear to:
8-15	Yellowish brown loose sand. Sharp to:
15-20	Yellowish brown friable sandy clay with weak coarse columnar structure. Clear to:
20-35	Rubby calcrete with brown very highly calcareous light sandy clay loam between the fragments. Abrupt to:
35-80	White very highly calcareous sandy clay loam with 20-50% limestone fragments (20-60 mm). Diffuse to:
80-130	Semi hard carbonate with more than 50% limestone fragments (6-20 mm). Diffuse to:
130-160	Light yellowish brown hard massive light sandy clay loam with 20-50% limestone fragments (6-20 mm).



**Classification:** Haplic, Lithocalcic, Brown Chromosol; medium, non-gravelly, sandy / clayey, moderate

## Summary of Properties

<b>Drainage</b>	Well drained. Soil never remains wet for more than a few days.
<b>Fertility</b>	Inherent fertility is low, as indicated by the exchangeable cation data. Regular phosphorus applications are necessary, and nitrogen levels depend on pasture legume condition. Zinc and copper deficiencies are likely (adequate concentrations at sampling site), and manganese may be needed for lupins. Organic carbon levels are high.
<b>pH</b>	Neutral at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	90 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	Hard consistence below rubble layer impedes root growth.
<b>Chemical:</b>	High pH from 80 cm. Low nutrient retention capacity in topsoil.
<b>Water holding capacity</b>	85 mm in root zone.
<b>Seedling emergence:</b>	Satisfactory, but may be reduced by water repellence in dry seasons.
<b>Workability:</b>	Soft surface is easily worked.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Moderately low to moderate.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.0	6.4	<1	0.07	0.54	1.5	14	160	0.44	0.74	-	1.8	2.1	5.0	6.34	0.54	0.04	0.33	0.8
0-8	7.1	6.6	<1	0.07	0.5	1.3	12	170	0.55	0.64	-	2.2	1.4	6.7	6.54	0.63	0.05	0.70	0.7
8-15	7.8	7.1	<1	0.06	0.42	0.4	3	100	<0.40	0.13	-	0.8	0.13	4.6	5.17	0.43	0.07	0.27	1.5
15-20	8.0	7.4	2	0.12	0.48	0.5	4	210	<0.40	0.13	-	0.39	0.07	18.6	14.27	1.33	0.15	0.58	0.8
20-35	8.8	7.8	47	0.12	0.54	0.7	6	150	<0.40	0.1	-	0.79	0.27	7.4	9.13	0.76	0.10	0.38	1.4
35-80	8.9	8.0	63	0.10	0.42	0.2	<2	110	0.91	0.06	-	0.52	0.15	4.7	6.53	0.67	0.14	0.31	3.0
80-130	9.6	8.3	49	0.11	0.66	0.1	<2	<40	0.86	0.06	-	0.62	0.08	1.4	1.79	0.44	0.20	0.10	na
130-160	9.6	8.4	34	0.13	0.73	<0.1	<2	60	<0.40	<0.05	-	0.47	0.35	1.3	1.25	0.62	0.26	0.12	na

**Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.