

## SHALLOW SAND OVER SANDY CLAY ON CALCRETE

**General Description:** *Loamy sand to sand over a brown sandy clay on calcrete at shallow depth*

**Landform:** Flat to very gently undulating plain with frequent low sandhills, isolated stony rises and swamps in depressions

**Substrate:** Calcreted calcarenite (Bridgewater Formation).

**Vegetation:** Mallee.



**Type Site:** Site No.: MM105

1:50,000 sheet:	6826-2 (Culburra)	Hundred:	Richards
Annual rainfall:	480 mm	Sampling date:	15/03/93
Landform:	Low rise on plain		
Surface:	Soft with 2-10% calcrete (60-200 mm)		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Dark greyish brown loose loamy sand. Clear to:
8-16	Brown soft sand. Sharp to:
16-26	Dark brown hard massive sandy clay. Sharp to:
26-45	Calcrete comprising cemented nodules and pockets of dark yellowish brown hard sandy clay. Abrupt to:
45-60	Laminar calcrete. Clear to:
60-105	Olive yellow and yellowish brown firm massive very highly calcareous sandy clay with 20-50% carbonate nodules (60-200 mm). Diffuse to:
105-160	Yellowish brown and olive yellow soft massive very highly calcareous sandy loam with 10-20% carbonate nodules (6-20 mm).



**Classification:** Haplic, Petrocalcic, Brown Chromosol; medium, slightly gravelly, sandy / clayey, shallow

## Summary of Properties

<b>Drainage</b>	Well drained. Soil rarely remains saturated for more than a few days.
<b>Fertility</b>	Inherent fertility is low, as indicated by the exchangeable cation data. Regular phosphorus applications are essential. Nitrogen content depends on pasture condition. Zinc and copper deficiencies are likely, although levels at the sampling site are adequate. Manganese may be required by cereals and lupins. Organic carbon concentrations are good.
<b>pH</b>	Neutral at the surface, strongly alkaline at depth.
<b>Rooting depth</b>	26 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The calcrete severely retards root growth.
<b>Chemical:</b>	There are no chemical barriers above the calcrete, other than the low nutrient retention capacity of the surface soil. High pH, salinity and sodicity limit further root growth should any penetrate the calcrete.
<b>Water holding capacity</b>	25 mm in root zone.
<b>Seedling emergence:</b>	Satisfactory, but can be reduced by stones.
<b>Workability:</b>	Loose to soft surface is easily worked, but stones may interfere with equipment.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Moderately low.

## 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	6.6	<	0.08	0.67	1.3	16	150	060	0.28	-	3.0	1.1	6.1	6.84	0.79	0.06	0.50	1.0
0-8	7.3	6.8	<1	0.09	0.73	1.2	25	260	0.80	0.19	-	2.7	0.76	7.0	5.70	0.67	0.08	0.74	1.1
8-16	7.2	6.5	<1	0.04	0.38	0.3	5	160	0.48	<0.05	-	0.70	0.07	2.8	2.49	0.21	0.06	0.42	na
16-26	7.9	7.4	<1	0.14	0.80	0.5	3	200	1.4	0.06	-	0.45	<0.06	18.5	13.38	1.99	0.79	0.80	4.3
26-45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-105	9.2	8.2	21	0.91	9.30	<0.1	<2	280	2.5	<0.05	-	0.47	0.27	11.2	5.96	2.63	3.44	0.80	30.7
105-160	9.4	8.3	22	0.50	4.85	<0.1	<2	72	0.30	<0.05	-	1.4	0.70	1.7	1.73	0.86	0.54	0.22	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.