

## SAND OVER SODIC BROWN CLAY

**General Description:** *Thick bleached sand overlying a brown and grey mottled coarsely columnar clay, calcareous with depth*

**Landform:** Broad flats between relict coastal dunes in the upper South East.

**Substrate:** Interbedded calcrete and clay (lagoonal deposits)

**Vegetation:** Pink gum - blue gum.



**Type Site:** Site No.: SE044

1:50,000 sheet: 6925-1 (Keith)

Hundred: Stirling

Annual rainfall: 500 mm

Sampling date: 08/11/95

Landform: Flat

Surface: Soft with no stones. Water table at 130 cm.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark grey soft loamy sand. Abrupt to:
15-25	Grey soft loamy sand. Abrupt to:
25-50	Bleached soft sand. Clear to:
50-70	Olive and yellow brown firm light clay with strong coarse prismatic structure. Sharp to:
70-90	Olive and yellow mottled firm medium clay with strong coarse angular blocky structure. Clear to:
90-105	Calcrete pan. Clear to:
105-125	Yellow and olive mottled firm fine sandy clay loam with weak coarse blocky structure.



**Classification:** Eutrophic, Petrocalcic, Brown Sodosol; thick, non-gravelly, sandy / clayey, moderate.

## Summary of Properties

<b>Drainage</b>	Imperfectly drained. The sodic clay subsoil causes water to 'perch', saturating part of the soil for up to several weeks.
<b>Fertility</b>	Natural fertility is low due to the low clay content - this is supported by the low CEC values. Organic matter is the main contributor to nutrient retention in the surface. The data indicate that phosphorus, sulphur and magnesium are adequately supplied, but potassium and calcium appear to be deficient. Note the significant phosphorus leaching.
<b>pH</b>	Slightly alkaline in the surface, strongly alkaline with depth.
<b>Rooting depth</b>	125 cm in pit but few roots below 90 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The sodic clay presents a moderate physical barrier, and the calcrete a severe barrier.
<b>Chemical:</b>	There are no chemical barriers above the calcrete.
<b>Water holding capacity</b>	Approximately 100 mm in the root zone (moderately high).
<b>Seedling emergence</b>	Good, except where sand is water repellent.
<b>Workability</b>	Good.
<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	SO <sub>4</sub> -S 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	7.8	7.3	0	0.37	3.00	1.0	25	83	30	1.1	1.0	11	3.0	1.8	3.7	2.26	2.04	0.25	0.09	6.8
0-15	7.6	7.1	0	0.51	3.31	2.2	36	78	36	2.0	-	-	-	-	8.0	4.52	3.88	0.60	0.11	7.5
15-25	8.9	8.3	0	0.38	3.69	0.5	71	62	27	1.2	-	-	-	-	2.1	2.23	1.74	0.23	0.06	na
25-50	9.2	8.6	0	0.30	3.34	0.1	36	86	24	0.4	-	-	-	-	0.7	0.58	0.57	0.13	0.05	na
50-70	8.7	8.0	0	0.33	2.29	0.1	48	715	22	9.8	-	-	-	-	12.1	3.64	7.51	1.67	2.00	13.8
70-90	8.9	8.2	0.1	0.41	2.30	0.1	5	876	34	14.4	-	-	-	-	17.7	4.12	9.68	2.21	2.52	12.5
90-105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105-125	8.9	8.2	0.1	0.41	2.77	<0.1	<4	787	35	16.6	-	-	-	-	14.6	2.52	8.64	1.99	2.02	13.6

**Note:** Paddock sample bulked from 20 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.