

SHALLOW SAND ON CALCRETE

General Description: *Medium to thick sand overlying calcrete*

Landform: Undulating rises.

Substrate: Calcreted calcarenites of ancient coastal dunes.

Vegetation:

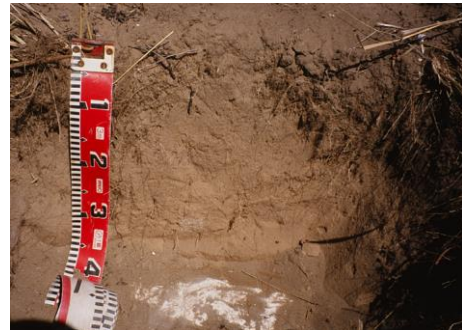


Type Site:	Site No.:	CH173	1:50,000 mapsheet:	6727-3 (Alexandrina)
	Hundred:	Alexandrina	Easting:	319380
	Section:	22	Northing:	6070100
	Sampling date:	30/03/2009	Annual rainfall:	440 mm average

Upper slope of gently undulating rise, 3% slope. Loose surface with 2-10% calcrete stones to 200 mm.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark brown soft single grain loamy sand. Clear to:
12-35	Pink (bleached) soft single grain light loamy sand. Sharp to:
35-80	Very strongly cemented calcrete pan. Diffuse to:
80-130	Strongly cemented calcrete pan. Diffuse to:
130-400	Reddish yellow friable massive very highly calcareous light clayey sand with 2-10% calcrete fragments.



Classification: Basic, Petrocalcic, Bleached-Leptic Tenosol; medium, slightly gravelly, sandy / -, shallow



Summary of Properties

- Drainage:** Rapidly drained. The soil is rarely saturated for more than a couple of hours.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. The test data are probably indicative of natural nutrient levels (as site is outside paddock). Levels of most tested nutrients are significantly lower than target values for a pasture soil.
- pH:** Alkaline throughout. Surface alkalinity due to influence of lime dust from surrounding quarry. Near neutral reaction is usual for this soil type.
- Rooting depth:** 35 cm.
- Barriers to root growth:**
- Physical:** The hard calcrete prevents downward extension of most roots. Roots of natural perennial species generally explore cracks in the calcrete, enabling the plant to extract some moisture from the unconsolidated layers below the calcrete.
- Chemical:** There are no chemical barriers, although low fertility is a restriction.
- Waterholding capacity:** Approximately 30 mm above the calcrete.
- Seedling emergence:** Satisfactory, although water repellence may cause patchy emergence in some seasons.
- Workability:** Sandy soils are easily worked, although in this environment, depth to calcrete is variable, and shallow soils with reefs occur sporadically, interfering with equipment.
- Erosion Potential:**
- Water:** Low.
- Wind:** Moderate, due to sandy surface and exposed position.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-12	8.8	7.7	0	0.06	0.43	18	0.25	5	4	66	2.2	0.3	0.18	5	0.67	0.09	4.7	4.04	0.45	0.07	0.13	1.5
12-35	9.0	7.9	0	0.06	0.25	8	0.09	3	2	25	1.1	0.3	0.17	3	0.45	0.08	4.9	4.19	0.57	0.04	0.10	0.8
35-80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80-130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130-400	9.2	8.0	15	0.06	0.30	5	0.05	5	2	37	3.3	0.3	0.28	3	0.81	0.17	11.0	9.99	0.74	0.13	0.13	1.2

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

