

CALCAREOUS SHELLY SAND

General Description: *Dark calcareous (shell) sand, gradually becoming paler and increasingly calcareous with depth.*

Landform: Dunefield of stranded parallel coastal dunes.

Substrate: Calcareous sand of Holocene age.

Vegetation: -



Type Site: Site No.: SE092

1:50,000 sheet: 6823-1 (Robe)

Hundred: Waterhouse

Annual rainfall: 650 mm

Sampling date: 15/10/04

Landform: Crest of low dune

Surface: Soft with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-40	Very dark greyish brown highly calcareous sand. Single grained. Diffuse change to:
40-70	Pale brown highly calcareous sand. Diffuse change to:
70-145	Light yellowish brown very highly calcareous sand.



Classification: Shelly Calcarosol; thick, non-gravelly, sandy / sandy, very deep.

Summary of Properties

Drainage: Very well to excessively drained, although a water table may be present below 145cm.

Fertility: Inherent fertility is very low (moderately high sums of cations are mostly attributable to calcium, where high readings are probably due to incomplete removal of carbonates). Test data indicate low concentrations of phosphorus, potassium, magnesium, sulphur, copper, manganese and zinc. Livestock need treatment for cobalt deficiency or Coast Disease (determined by blood serum analysis).

pH: Strongly alkaline throughout.

Rooting depth: 145 cm or more.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: Alkalinity and high carbonate concentrations do not suit a range of plants. Foliar nutrient applications or use of liquid fertilizers necessary on these soils.

Water holding capacity: Approximately 100 mm.

Seedling emergence: Satisfactory, but there is risk of sand-blasting.

Workability: Easily worked, but will dry out quickly.

Erosion Potential

Water: Low

Wind: High

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-40	8.7	7.8	61.8	0.07	0.31	1.1	11	32	5	2.2	0.5	0.4	8	1.0	5.1	13.0*	12*	0.7	0.0	0.1	na
40-70	9.0	8.0	79.4	0.05	0.14	0.2	3	16	2	1.6	0.3	0.2	6	0.4	1.1	7.9*	7.5*	0.4	0.0	0.0	na
70-145	9.1	8.1	73.3	0.06	0.18	0.4	2	28	8	2.3	0.6	0.2	15	0.3	3.2	7.8*	6.9*	0.8	0.1	0.1	na

Note: * High values probably indicate that carbonate removal was incomplete prior to cation extraction.

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 soil, exchangeable sodium values and 'true' sum of cations are so low that ESP is meaningless.