THICK SAND OVER SANDY CLAY

General Description: *Thick bleached sand over a coarsely structured brown sandy clay, calcareous with depth*

Landform: Flat to gently undulating plains with frequent irregular sandhills and swampy depressions

Substrate: Clayey lagoonal sediments (Padthaway Formation)

Vegetation: Mallee / heath

Type Site: Site No.: MM106

1:50,000 sheet:	6826-2 (Culburra)	Hundred:	Richards
Annual rainfall:	480 mm	Sampling date:	15/03/93
Landform:	Flat		
Surface:	Soft with no stones		

Soil Description:

Depth (cm)	*Description*
0-10	Dark greyish brown loose sand. Clear to:
10-23	Greyish brown loose sand. Clear to:
23-50	Light grey (bleached) soft sand. Abrupt to:
50-65	Dark yellowish brown hard sandy clay with coarse columnar structure. Diffuse to:
65-115	Yellowish brown and light yellowish brown hard massive sandy clay with minor fine carbonate segregations. Diffuse to:
115-160	Light olive brown and light olive grey mottled hard massive moderately calcareous sandy clay with 10-20% carbonate nodules (20-60 mm). Diffuse to:
160-190	Olive friable massive moderately calcareous sandy clay.
190	Water table.

Classification: Bleached-Sodic, Calcic, Brown Chromosol; thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage Well drained. Soil rarely remains wet for more than a few days.

Fertility Inherent fertility is low, as indicated by the exchangeable cation data. Phosphorus and nitrogen deficiencies are widespread, and occasional copper and zinc deficiencies are likely. Potassium may be deficient where hay has been cut. Manganese is required by lupins. Phosphorus and potassium levels are marginal at sampling site. Organic carbon levels are adequate.

pH Slightly acidic at the surface, alkaline with depth.

Rooting depth 80 cm in pit (lucerne).

Barriers to root growth

Physical: The dense clayey subsoil and substrate restrict root growth.

Chemical: There are no chemical barriers in the upper metre (sodic at depth), but low nutrient retention capacity limits root volume.

Water holding capacity 75 mm in root zone.

Seedling emergence: Satisfactory, but can be reduced by water repellence in dry years.

Workability: Soft to loose surface is easily worked.

Erosion Potential

Water: Low.

Wind: Moderate.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	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	6.5	5.8	<1	0.07	0.44	1.2	15	99	1.0	0.29	-	2.3	1.3	3.6	3.82	0.64	0.03	0.25	0.8
0-10	6.1	5.3	<1	0.08	0.65	1.2	18	120	0.85	0.21	-	2.9	1.2	3.5	3.42	0.53	0.02	0.24	0.6
10-23	6.2	5.5	<1	0.03	0.25	0.3	14	69	0.44	0.07	-	0.54	0.08	1.9	1.62	0.39	0.03	0.25	na
23-50	6.3	5.6	<1	0.02	0.19	0.1	7	51	0.19	<0.05	-	0.07	<0.06	0.9	0.74	0.30	0.16	0.22	na
50-65	7.3	6.4	<1	0.09	0.59	0.3	9	390	1.9	0.41	-	0.73	<0.06	12.2	5.59	2.84	0.51	1.32	4.2
65-115	8.8	7.8	3	0.26	1.82	0.2	<2	400	4.3	0.15	-	0.3	<0.06	9.9	5.03	2.99	1.13	1.08	11.4
115-160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160-190	8.8	8.3	4	1.93	18.7	<0.1	3	660	15	0.28	-	0.081	<0.06	11.9	3.07	4.27	3.23	1.92	27.1

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.