CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam grading to a very highly calcareous clay*

Landform: Very gently undulating plains with 30-60% low to moderate parallel sandhills.

Substrate: Coarsely structured heavy clay (Blanchetown Clay equivalent), over massive clayey sand to sandy clay (Parilla Sand equivalent).

Vegetation: Mallee

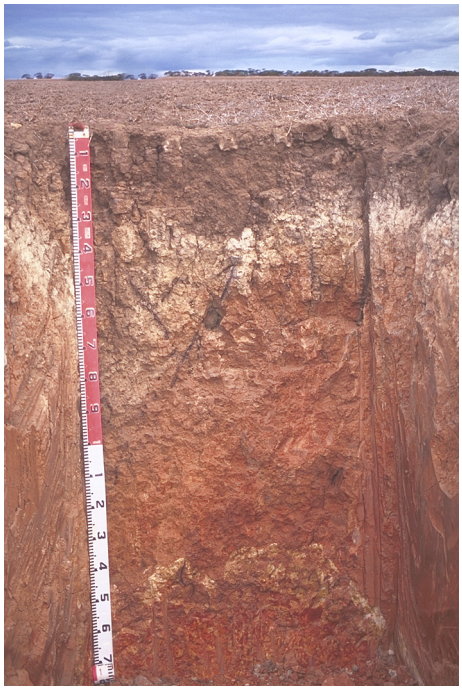
Type Site:

Site No.:	MM123	1:50,000 mapsheet:	6927-2 (Parrakie)
Hundred:	Bews	Easting:	448300
Section:	38	Northing:	6093350
Sampling date:	21/05/1996	Annual rainfall:	355 mm average

Flat. Firm to hard setting surface. No stones.

Soil Description:

Depth (cm)	*Description*
0-18	Brown firm massive moderately calcareous clay loam. Gradual to:
18-38	Light yellowish brown very hard, very highly calcareous medium heavy clay with coarse prismatic breaking to angular blocky structure. Clear to:
38-78	Reddish brown and light olive brown mottled very hard, moderately calcareous medium heavy clay with coarse prismatic breaking to angular blocky structure. Abrupt to:
78-132	Yellowish red and light olive brown mottled hard medium heavy clay with coarse subangular blocky structure. Clear to:
132-155	Red and light olive brown mottled very hard massive sandy clay loam. Abrupt to:
155-173	Red, olive yellow and light olive brown mottled very hard massive sandy clay loam.



Classification: Vertic, Pedal, Calcic Calcarosol; medium, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. Soil rarely remains saturated for more than a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate to high, as indicated by the exchangeable cation data. Nutrient retention capacity is high, but some fixation is caused by the carbonate. Regular phosphorus applications are essential. Nitrogen levels depend on legume status of pastures and cropping history. Zinc and copper deficiencies are possible - zinc level is marginal at sampling site. Organic carbon concentrations are satisfactory.

pH: Alkaline at the surface, strongly alkaline with depth and acidic in the substrate.

Rooting depth: 78 cm in pit, but few roots below 18 cm.

Barriers to root growth:

Physical: The hard, dense clayey subsoil impedes root growth.

Chemical: High pH from 18 cm, and high boron concentrations and sodicity from 38 cm severely restrict root growth.

Waterholding capacity: Approximately 50 mm in the rootzone.

Seedling emergence: Fair due to tendency of surface soil to seal over.

Workability: Fair to poor. Surface soil has a limited moisture range for effective working.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 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	8.4	7.9	4.2	0.22	1.18	1.4	1	548	7	5.5	0.61	16	3.12	0.33	30.6	19.87	9.00	0.82	1.90	2.7
0-18	8.3	7.9	3.3	0.20	1.14	1.4	8	576	7	5.8	-	-	-	-	31.1	20.25	9.24	0.64	2.01	2.1
18-38	9.4	8.5	10.7	0.35	0.77	0.4	<4	215	6	11.4	-	-	-	-	27.1	10.59	12.28	4.60	0.73	17.0
38-78	9.6	8.9	5.7	0.69	1.15	0.2	<4	267	41	27.5	-	-	-	-	24.0	4.68	12.43	8.06	0.96	33.6
78-132	8.6	7.9	<0.1	0.49	1.23	0.1	<4	257	44	25.5	-	-	-	-	19.9	1.97	8.08	8.18	0.66	41.6
132-155	5.4	4.6	0	0.41	1.45	0.2	<4	175	66	4.6	-	-	-	-	13.2	0.81	5.13	5.62	0.36	42.6
155-173	5.4	4.4	0	0.35	1.16	0.1	<4	162	60	4.3	-	-	-	-	12.4	0.72	4.76	5.55	0.37	44.6

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.

Further information: DEWNR Soil and Land Program