SHALLOW RUBBLY CALCAREOUS SANDY LOAM

General Description: *Calcareous sandy loam to sandy clay loam with variable rubble, over calcrete at shallow depth*

Landform: Flat to gently undulating plains.

Substrate: Highly calcareous medium to fine grained sediments (Padthaway Formation), capped by calcrete.

Vegetation: Mallee

Type Site:

Site No.:	MM081	1:50,000 mapsheet:	6826-4 (Binnie)
Hundred:	Strawbridge	Easting:	385800
Section:	9	Northing:	6047600
Sampling date:	1992	Annual rainfall:	460 mm average

Flat, with firm surface and 20-50% calcrete stone (60-200 mm)

Soil Description:

Depth (cm)	*Description*
0-7	Dark greyish brown firm calcareous granular structured sandy clay loam with 10-20% carbonate nodules (20-60 mm). Abrupt to:
7-11	Yellowish red moderately calcareous hard massive sandy clay with 10-20% carbonate nodules (20-60 mm). Clear to:
11-25	Rubbly calcrete pan of two thirds hard nodules (20-60 mm) and one third orange very highly calcareous sandy clay loam. Diffuse to:
25-60	Pale yellow very highly calcareous massive sandy clay loam with 10-20% carbonate nodules (20-60 mm). Diffuse to:
60-120	Very pale brown very highly calcareous massive sandy clay loam with 20-50% carbonate nodules (20-60 mm). Diffuse to:
120-180	Very pale brown very highly calcareous massive sandy clay with 20-50% calcrete nodules (20-60 mm) and 10-20% yellowish brown clayey inclusions.

Classification: Ceteric, Regolithic, Lithocalcic Calcarosol; medium, moderately gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Well drained. Soil never remains saturated for more than a few days.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Regular phosphorus additions are needed and nitrogen depends on pasture legumes. Copper and zinc (adequate at sampling site) can be deficient. Manganese may be required on cereals. Organic carbon levels are high.

pH: Alkaline at the surface, strongly alkaline with depth.

Rooting depth: 60 cm in pit.

Barriers to root growth:

Physical: Calcrete rubble impedes downward root growth.

Chemical: No chemical barriers above calcrete, but high pH from 60 cm prevents further root growth, if any have penetrated the calcrete.

Waterholding capacity: 60 mm in rootzone.

Seedling emergence: Satisfactory.

Workability: Firm surface is easily worked, but stones interfere with and abrade equipment.

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	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	8.3	7.6	3	0.15	0.84	1.6	20	220	2	0.25	-	3.8	0.56	14.8	12.80	0.79	0.06	0.62	0.4
0-7	8.4	7.6	3	0.13	0.85	1.9	18	220	1.1	0.26	-	3.7	0.57	15.8	14.19	0.87	0.09	0.58	0.6
7-11	8.4	7.7	<1	0.11	0.56	0.9	5	180	0.77	0.09	-	0.9	0.19	19.3	15.35	1.07	0.10	0.55	0.5
11-25	8.7	7.9	55	0.13	0.47	1.1	6	130	1.1	0.1	-	0.62	0.37	14.5	14.26	1.06	0.10	0.39	0.7
25-60	9.1	8.1	74	0.11	0.38	0.4	<2	87	0.83	0.07	-	0.15	0.37	8.5	8.79	1.43	0.23	0.25	2.7
60-120	9.3	8.2	75	0.11	0.46	0.2	<2	79	0.57	0.07	-	0.23	0.27	8.1	7.38	2.00	0.30	0.20	4.1
120-180	9.4	8.2	59	0.23	1.35	0.1	<2	110	0.71	<.05	-	0.86	0.47	11.6	8.10	3.30	1.29	0.35	11.1

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.

Further information: DEWNR Soil and Land Program