HIGHLY CALCAREOUS SANDY LOAM
(Magarey soil)

General Description: *Highly calcareous sandy loam grading to a very highly calcareous sandy clay loam with variable carbonate nodules*

Landform: Gently undulating rises and low hills.

Substrate: Very highly calcareous medium to coarse textured windblown deposits (Woorinen Formation).

Vegetation: Mallee.

Type Site: Site No.: EW062

1:50,000 sheet:	5733-2 (Pimbaacla)	Hundred:	Petina
Annual rainfall:	300 mm	Sampling date:	16/01/86
Landform:	Midslope of low hill		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-7	Dark brown massive highly calcareous light sandy clay loam. Abrupt to:
7-17	Dark brown massive highly calcareous sandy clay loam. Clear to:
17-39	Dark yellowish brown massive highly calcareous sandy clay loam. Abrupt to:
39-44	Brown massive very highly calcareous light sandy clay loam with 20-50% Class III B carbonate nodules. Abrupt to:
44-72	Dark brown massive very highly calcareous sandy clay loam. Gradual to:
72-108	Strong brown massive very highly calcareous light sandy clay loam. Clear to:
108-125	Strong brown light sandy clay loam matrix in platy calcrete. Clear to:
125-175	Reddish yellow sandy clay loam matrix in platy calcrete.

Classification: Hypervescent, Regolithic, Supracalcic Calcarosol; thick, non-gravelly, loamy / clay loamy, deep

Summary of Properties

Drainage: Rapidly drained. The soil rarely remains saturated for more than a few hours.

Fertility: Inherent fertility is low due to the low clay content and very high carbonate concentration to the surface. Nutrient retention capacity is low and fixation of phosphorus, zinc, manganese, copper and iron is high.

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

Rooting depth: Not recorded. Estimate 40 cm in pit.

Barriers to root growth:

Physical: There are no physical barriers above the calcrete at 108 cm.

Chemical: High pH from 39 cm, high sodicity from 44 cm and high boron concentrations from 72 cm combine to restrict root growth.

Water holding capacity: Approximately 60 mm in the potential root zone.

Seedling emergence: Satisfactory.

Workability: The soft calcareous sandy loam 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	SO_4-S 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	
0-7	8.6	8.0	26	0.12	0.8	-	-	-	9.9	2.7	-	-	-	-	12.9	-	2.3	0.21	1.2	1.6
7-17	8.6	8.0	26	0.12	0.8	-	-	-	9.5	2.7	-	-	-	-	12.9	-	2.3	0.21	1.2	1.6
17-39	8.6	8.0	30	0.11	0.7	-	-	-	10.5	2.6	-	-	-	-	12.8	-	2.9	0.25	0.89	2.0
39-44	9.5	8.3	46	0.52	3.4	-	-	-	-	14.0	-	-	-	-	9.0	-	6.5	2.0	1.2	22.2
44-72	9.7	8.4	50	0.40	2.6	-	-	-	-	12.0	-	-	-	-	9.5	-	9.2	2.5	0.98	26.3
72-108	9.8	8.5	48	0.68	4.5	-	-	-	-	23.0	-	-	-	-	9.0	-	8.1	3.2	0.97	35.6
108-125	9.6	8.4	53	0.89	5.9	-	-	-	-	18.0	-	-	-	-	7.7	-	5.4	2.3	0.81	29.9
125-175	9.6	8.4	51	0.92	6.1	-	-	-	-	17.0	-	-	-	-	7.0	-	5.5	2.0	0.74	28.6

Note: 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.

* Exchangeable calcium (Ca) values not presented because the laboratory procedure used was inappropriate for very highly calcareous samples.