

CALCAREOUS CLAY

General Description: *Red brown well structured calcareous clay, becoming more clayey and calcareous with depth, grading to a Class I carbonate layer, overlying a coarsely structured red heavy clay*

Landform: Lower slopes and valley flats

Substrate: Reddish strongly structured heavy clay of Pleistocene age (Hindmarsh Clay equivalent)

Vegetation: Mallee scrub



Type Site:	Site No.:	CM033	1:50,000 mapsheet:	6530-3 (Lochiel)
	Hundred:	Goyder	Easting:	244100
	Section:	600	Northing:	6234450
	Sampling date:	14/05/93	Annual rainfall:	380 mm average

Flat between undulating rises, with a firm surface and a slope of 1%.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown highly calcareous light clay with moderate granular structure. Clear to:
10-25	Dark reddish brown highly calcareous medium clay with moderate prismatic structure. Gradual to:
25-40	Dark reddish brown highly calcareous medium heavy clay with moderate prismatic structure. Clear to:
40-80	Red highly calcareous medium heavy clay with strong coarse prismatic structure and 20-50% soft carbonate (Class I carbonate). Diffuse to:
80-150	Red moderately calcareous very firm heavy clay with lenticular structure (Hindmarsh Clay equivalent).



Classification: Epihypersodic, Pedal, Hypercalcic Calcarosol; medium, non-gravelly, clayey / clayey, deep



Summary of Properties

- Drainage:** The soil is moderately well drained, despite its high clay content and low lying position. The profile is unlikely to remain wet for more than a week or so.
- Fertility:** The soil has a high level of natural fertility, as indicated by the high CEC and exchangeable calcium values. Organic carbon values are also high, helping to retain nutrients at the soil surface. High pH in the subsoil may limit the availability of some elements such as zinc which has very low concentrations from 25 cm.
- pH:** Alkaline at the surface, strongly alkaline with depth.
- Rooting depth:** 150 cm at sampling site, but there are few roots below 80 cm.
- Barriers to root growth:**
- Physical:** There are no physical barriers above the Hindmarsh Clay, the high strength of which may impede root development.
 - Chemical:** High boron levels, ESP and pH (limiting nutrient availability), restrict root growth below 80 cm.
- Waterholding capacity:** Approximately 130 mm in rootzone.
- Seedling emergence:** Good.
- Workability:** Good, although the surface becomes sticky after prolonged rain.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	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	8.0	7.8	3.8	0.21	0.73	2.2	24	1196	-	2.9	1.1	6	8.8	0.7	39.0	31.80	4.41	0.58	3.85	1.5
0-10	8.0	7.7	4.5	0.20	0.68	2.3	20	1195	-	3.6	1.2	7	7.1	0.5	42.2	32.33	4.20	0.51	3.85	1.2
10-25	8.1	7.9	5.8	0.17	0.50	1.2	6	785	-	2.5	1.4	9	4.4	0.2	41.9	31.16	5.30	0.98	2.64	2.3
25-40	8.5	8.0	19.5	0.19	0.42	0.6	4	325	-	2.6	1.4	11	3.5	0.1	34.5	23.03	6.43	2.12	1.28	6.1
40-80	9.1	8.3	29.4	0.41	1.07	0.3	4	422	-	7.0	1.4	10	2.6	0.1	30.4	11.78	9.11	5.98	1.51	19.7
80-150	9.5	8.6	22.9	1.01	2.00	0.2	4	552	-	47.5	1.0	9	1.5	0.1	32.7	6.18	11.48	12.16	1.91	37.2

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](#)

