

## CALCAREOUS CLAY LOAM

**General Description:** *Reddish brown calcareous loam to clay loam becoming more clayey and calcareous with depth, and containing variable quartzite stone fragments throughout*

**Landform:** Slopes of undulating rises

**Substrate:** Reddish heavy clay with abundant quartzite fragments

**Vegetation:** Mallee scrub



**Type Site:** Site No.: CM032

1:50,000 sheet: 6529-4 (Wakefield)      Hundred: Goyder  
 Annual rainfall: 385 mm      Sampling date: 14/05/93  
 Landform: Upper slope of an undulating rise, 5% slope  
 Surface: Hard setting with no stones

### Soil Description:

Depth (cm)	Description
0-8	Dark reddish brown slightly calcareous weakly structured clay loam. Abrupt to:
8-18	Dark reddish brown highly calcareous light clay with weak prismatic structure and 2-10% quartzite fragments. Abrupt to:
18-30	Orange very highly calcareous massive light clay with up to 50% carbonate nodules (Class III B carbonate), and 2-10% quartzite fragments. Clear to:
30-60	Orange very highly calcareous massive medium clay with about 50% fine carbonate and 2-10% quartzite fragments. Gradual to:
60-90	Red moderately calcareous very firm heavy clay with strong coarse prismatic structure, 10-20% soft carbonate and 2-10% quartzite fragments. Diffuse to:
90-150	Red heavy clay with strong blocky structure and 2-10% quartzite fragments.



**Classification:** Epihypersodic, Regolithic, Supracalcic Calcarosol; medium, non-gravelly, clay loamy / clayey, moderate

## Summary of Properties

<b>Drainage</b>	The soil is well drained and no part of the profile is likely to remain wet for more than a few days.
<b>Fertility</b>	The soil has a high capacity to retain nutrients, as indicated by the exchangeable cation data, and favourable organic matter levels. Induced deficiencies of some nutrients caused by high pH and carbonate content may occur. Phosphorus is low at sampling site.
<b>pH</b>	Mildly alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	90 cm in pit, but there are few roots below 60 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	There are no apparent barriers until the substrate clay appears at 60 cm. This has high strength and may impede root penetration.
<b>Chemical:</b>	Toxic levels of boron, moderate salinity, high exchangeable sodium and high pH which induces nutrient deficiencies (note very low zinc values below 18 cm), all contribute to poor root growth below 60 cm.
<b>Water holding capacity</b>	Approximately 85 mm in root zone.
<b>Seedling emergence</b>	Fair, due to the hard, sealing surface. This feature is not typical of this soil type, but erosion of topsoil may have exposed less favourable subsoil clay.
<b>Workability</b>	Fair, as the surface has a moderately narrow moisture range for effective working.
<b>Erosion Potential</b>	
<b>Water:</b>	Moderate, as a result of the 5% slope.
<b>Wind:</b>	Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -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	
Paddock	7.9	7.7	0.9	0.19	0.71	2.0	14	630	-	3.8	0.6	6	5.2	0.5	27.2	20.12	3.73	0.35	1.61	1.3
0-8	7.9	7.7	0.4	0.20	1.03	2.2	16	884	-	3.9	0.6	6	6.5	0.3	28.5	21.00	3.75	0.28	2.33	1.0
8-18	8.2	7.9	6.9	0.17	0.52	2.0	14	395	-	4.6	0.6	8	2.5	0.2	29.7	22.80	5.10	0.66	1.05	2.2
18-30	9.1	8.3	42.8	0.64	3.12	0.7	5	104	-	13.5	1.2	6	1.9	0.1	18.0	7.98	8.07	3.67	0.37	20.4
30-60	9.3	8.5	46.0	1.47	8.68	0.2	5	171	-	28.7	1.5	5	0.9	0.1	15.8	3.42	8.09	5.98	0.54	37.8
60-90	9.2	8.7	13.1	1.64	7.23	0.2	<4	350	-	34.4	0.7	5	0.6	0.1	29.1	5.00	13.00	9.19	0.96	31.6
90-150	9.0	8.6	0.2	1.77	5.89	0.1	<4	379	-	19.2	0.7	9	0.5	0.1	34.8	4.91	15.16	10.72	1.01	30.8

**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.