GRADATIONAL CALCAREOUS CLAY LOAM

General Description: *Calcareous sandy clay loam to clay loam, becoming more clayey and calcareous with depth over clayey substrate within 120 cm.*

Landform: Level to very gently inclined plains.

Substrate: Tertiary clay capped by fine carbonate.

Vegetation: Mallee.

Type Site:

Site No.:	MO034	1:50,000 mapsheet:	6727-4 (Monarto)
Hundred:	Monarto	Easting:	329510
Section:	261	Northing:	6110250
Sampling date:	1976	Annual rainfall:	395 mm average

Very gently inclined plain with less than 1% slope. Firm surface, no stones.

Soil Description:

Depth (cm)	*Description*
0-11	Reddish brown massive soft slightly calcareous sandy clay loam. Clear to:
11-31	Yellowish red soft highly calcareous fine sandy clay with weak angular blocky structure. Gradual to:
31-90	Yellowish red and reddish yellow massive firm very highly calcareous sandy clay loam with 20-50% fine carbonate segregations. Diffuse to:
90-140	Yellowish red hard sandy clay with strong coarse prismatic structure and 2-10% fine carbonate segregations.

Classification: Epihypersodic, Regolithic, Hypercalcic Calcarosol; thick, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well to imperfectly drained. The soil may remain wet for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high. Clay content is high, and surface is only slightly calcareous. Availability of phosphorus, zinc, copper and manganese is only slightly affected.

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

Rooting depth: Not recorded. Estimate 50 cm in pit.

Barriers to root growth:

Physical: There are no significant barriers above the substrate clay (from 90 cm).

Chemical: High pH, highly calcareous clay, high sodicity and probably high boron concentration combine to restrict root growth to upper 50 cm of profile.

Waterholding capacity: Approximately 70 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: The firm surface is easily worked.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	Coarse sand %	Fine sand %	Silt %	Clay %	pH H_2O	CO_3 %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-11	36	31	4	24	8.4	0.2	0.12	<50	19	11.0	3.4	0.34	1.4	1.8
11-31	25	20	2	40	8.8	5.2	0.18	150	26	16.0	6.5	0.98	1.4	3.8
31-90	21	14	1	23	10.1	35	0.48	236	12	3.8	6.0	4.7	0.91	39.2
90-140	30	20	1	32	10.1	9.7	0.43	136	18	2.8	5.8	7.6	0.73	42.2

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.

Further information: DEWNR Soil and Land Program