

GRADATIONAL DARK CLAY

General Description: *Dark grey to black clay loam to clay becoming more clayey with depth over a highly calcareous clay*

Landform: Flat plains.

Substrate: Clay.

Vegetation: Eucalyptus camaldulensis.

Type Site:	Site No.:	SE006	1:50,000 mapsheet:	6924-2 (Lucindale)
	Hundred:	Joyce	Easting:	443450
	Section:	-	Northing:	5908450
	Sampling date:	17/02/1992	Annual rainfall:	590 mm average

Flat. Firm surface. No stone.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Very dark grey firm medium clay with strong medium polyhedral structure. Clear to:
12-21	Very dark grey and dark greyish brown firm medium heavy clay with strong medium polyhedral structure. Clear to:
21-35	Very dark grey and brown firm highly calcareous sandy medium clay with more than 50% calcrete fragments (6-20 mm) and 20-50% fine carbonate segregations. Abrupt to:
35-70	Very dark grey and dark brown firm highly calcareous sandy medium clay with 20-50% fine carbonate segregations. Diffuse to:
70-90	Very dark grey firm highly calcareous sandy medium clay.



Classification: Melanic, Lithocalcic, Black Dermosol; medium, non-gravelly, clayey / clayey, deep



Summary of Properties

- Drainage:** Imperfectly drained. The soil may remain wet for several weeks following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is high. The soil has favourable nutrient retention characteristics due to high clay content. However, regular phosphorus applications are necessary and nitrogen is needed if not adequately supplied from pasture legumes. Black alkaline soils are prone to zinc deficiency – confirmed by low DTPA test. Organic carbon levels are low for this soil type.
- pH:** Slightly alkaline at the surface, strongly alkaline with depth.
- Rooting depth:** Not recorded. Estimate 70 cm in pit.
- Barriers to root growth:**
- Physical:** There are no physical barriers, although the carbonate layer is not always soft as at this site. Hard carbonate layers impose a severe constraint on root growth.
- Chemical:** High pH from 70 cm limits root growth.
- Waterholding capacity:** Approximately 110 mm in rootzone.
- Seedling emergence:** Fair. Hard surface may seal and prevent even establishment.
- Workability:** Fair. Surface soil tends to become sticky when wet, restricting access time.
- 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	
0-12	7.6	6.9	1.9	0.30	-	1.29	5	380	-	-	0.27	42	1.3	0.17	-	-	-	-	-	-
12-21	7.7	7.0	2.4	0.27	-	0.84	5	620	-	-	0.23	27	0.9	0.13	-	-	-	-	-	-
21-35	9.0	7.9	45.1	0.25	-	0.50	4	490	-	-	0.28	19	1.2	0.10	-	-	-	-	-	-
35-70	9.3	8.0	41.4	0.24	-	0.43	2	450	-	5.5	0.40	13	0.6	0.13	-	-	-	-	-	-
70-90	9.5	8.2	60.2	0.22	-	0.24	3	290	-	1.6	0.35	9	0.3	0.18	-	-	-	-	-	-

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](#)

