HARD GRADATIONAL RED CLAY

(Clayey red brown earth)

General Description: *Hard clay loam to light clay grading to a red coarsely structured clay, calcareous with depth*

Landform: Gently undulating rises.

Substrate: Tertiary clays

Vegetation:

Type Site:

Site No.:	EL033	1:50,000 mapsheet:	6029-1 (Cockaleechie)
Hundred:	Brooker	Easting:	583000
Section:	6	Northing:	6220600
Sampling date:	10/01/1991	Annual rainfall:	430 mm average

Gentle slope with some gilgai. Hard surface with no stones.

Soil Description:

Depth (cm)	*Description*
0-5	Dark yellowish brown highly calcareous light medium clay with ironstone fragments. Clear to
5-90	Yellowish red very highly calcareous medium clay with ironstone fragments. Gradual to:
90-150	Brownish yellow slightly calcareous medium clay with ironstone fragments.

Classification: Sodic, Calcic, Red Dermosol; thin, non-gravelly, clayey / clayey, moderate

Summary of Properties

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

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data, although ironstone gravel ties up phosphorus. Zinc deficiencies can also be expected as is usual on alkaline clays.

pH: Alkaline throughout.

Rooting depth: Not recorded. Estimate 90 cm in pit.

Barriers to root growth:

Physical: The high strength clay prevents optimum root densities and distribution patterns.

Chemical: High sodicity from 90 cm restricts deeper root growth.

Waterholding capacity: Approximately 100 mm in the potential rootzone, but low root densities reduce this figure in practice.

Seedling emergence: Fair - hard surface soil impedes emergence.

Workability: Fair - surface soil becomes sticky and intractable when wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	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	
0-5	7.9	7.6	10	0.16	0.51	1.67	52	-	-	-	0.37	16.8	2.72	0.32	23.3	21.68	2.75	0.40	1.25	1.7
5-90	8.8	7.9	2	0.26	0.70	0.19	2	-	-	7.3	0.08	14.1	0.81	0.06	21.0	9.15	7.08	3.51	0.98	16.7
90-150	9.2	8.3	20	1.40	6.09	-	-	-	-	-	0.19	9.2	1.00	0.17	19.0	3.43	6.64	8.60	1.00	45.3

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