BLACK CLAY OVER RUBBLE

General Description: *Black seasonally cracking clay, highly calcareous at shallow depth over marl*

Landform: Level plain.

Substrate: Highly calcareous clay (marl) of the Padthaway Formation.

Vegetation:

Type Site:

Site No.:	SE022	1:50,000 mapsheet:	6923-1 (Conmurra)
Hundred:	Conmurra	Easting:	440850
Section:	240	Northing:	5899570
Sampling date:	11/05/1994	Annual rainfall:	615 mm average

Flat plain, 0% slope. Hard setting, cracking surface, annually inundated to a depth of 20 cm.

Soil Description:

Depth (cm)	*Description*
0-5	Very dark grey firm sandy light medium clay with strong very coarse prismatic structure. Clear to:
5-7	Grey firm fine sandy light clay with strong very coarse prismatic structure. Clear to:
7-17	Very dark grey firm heavy clay with strong coarse prismatic structure and 10-20% carbonate nodules (20-60 mm). Sharp to:
17-55	Very dark grey hard heavy clay with strong coarse polyhedral structure and more than 50% carbonate fragments (60-200 mm). Clear to:
55-155	Olive grey firm massive calcareous medium clay with 10-20% fine carbonate segregations and 10-20% carbonate fragments (20-60 mm). Watertable at 155 cm.

Classification: Sodic, Lithocalcic, Black Dermosol; thin, non-gravelly, clayey / clayey, moderate

Summary of Properties

Drainage: Imperfectly drained. The clayey texture and watertable at depth maintain saturation for several weeks at a time during winter.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Phosphorus levels are low, but concentrations of other tested nutrient elements, as well as organic carbon, are high.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 55 cm in pit.

Barriers to root growth:

Physical: The coarsely structured clay restricts root density, thereby reducing water use efficiency.

Chemical: There are no chemical barriers.

Waterholding capacity: Approximately 85 mm in the potential rootzone.

Seedling emergence: Fair. Emergence is reduced if surface dries during establishment.

Workability: Fair to poor. The clayey surface becomes sticky and intractable when wet, and unworkable once inundated.

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	
Paddock	7.2	6.9	0.1	0.24	1.37	3.3	10	355	-	4.5	0.5	23	17.3	1.4	26.1	14.0	10.0	1.24	1.51	4.8
0-5	7.1	6.7	0	0.27	1.69	3.6	13	324	-	4.4	0.7	27	10.0	1.4	24.6	13.3	9.7	1.49	1.29	6.1
5-7	7.4	7.0	0.1	0.23	1.14	3.0	11	319	-	5.0	0.7	24	7.3	1.0	27.0	12.5	10.4	1.88	1.29	7.0
7-17	8.1	7.6	0.3	0.31	1.10	1.3	12	527	-	7.7	0.2	17	2.5	0.4	45.7	18.0	18.1	3.73	2.80	8.2
17-55	8.7	8.1	33.6	0.55	2.50	0.6	8	600	-	3.8	0.2	9	0.7	0.2	30.4	10.5	13.2	3.99	2.78	13.1
55-95	9.2	8.2	53.9	0.50	2.31	0.4	4	442	-	1.3	0.2	8	0.4	0.2	22.1	5.2	10.7	4.11	1.83	18.6
95-135	9.2	8.2	60.0	0.56	2.69	0.5	<4	413	-	1.2	0.1	6	0.1	0.2	20.4	4.6	10.5	4.00	1.55	19.6
135-155	9.3	8.2	61.5	0.57	2.80	0.4	<4	347	-	1.0	0.1	4	0.2	0.2	16.9	4.2	9.2	3.81	1.23	22.5

Note: Paddock sample bulked from 20 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