

GRADATIONAL DARK CLAY

General Description: *Dark clay loam to light clay grading to a coarsely structured dark grey or brown clay, calcareous with depth*

Landform: Level plain.

Substrate: Clay with calcareous lenses.

Vegetation: Red gum (*Eucalyptus camaldulensis*).



Type Site: Site No.: SE070

1:50,000 sheet: 7024-2 (Hynam)

Hundred: Jessie

Annual rainfall: 550 mm

Sampling date: 28/08/97

Landform: Depression on plain

Surface: Firm with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-19	Very dark grey firm fine sandy light medium clay with moderate polyhedral structure. Clear to:
19-47	Dark grey and greyish brown firm fine sandy medium clay with strong coarse subangular blocky structure. Diffuse to:
47-68	Greyish brown firm slightly calcareous light medium clay with minor carbonate concretions (2-6 mm). Clear to:
68-78	Dark greyish brown, olive grey and pale olive firm slightly calcareous light medium clay with weak subangular blocky structure and 2-10% carbonate nodules (2-6 mm). Abrupt to:
78-88	Brown and brownish yellow calcareous firm medium clay with weak subangular blocky structure and 10-20% carbonate concretions (6-20 mm). Abrupt to:
88-126	Brownish yellow and yellowish red firm massive light clay with 2-10% ferro-manganiferous concretions. Clear to:
126-160	Olive yellow firm massive light medium clay with 10-20% carbonate concretions (6-20 mm).



Classification: Sodic, Calcic, Grey Dermosol; medium, non-gravelly, clayey / clayey, deep

Summary of Properties

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

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. There are no apparent deficiencies, although copper levels may be marginal.

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

Rooting depth: 126 in pit, but few roots below 68 cm.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: High pH from 68 cm and high sodicity from 88 cm restrict root growth.

Water holding capacity: Approximately 130 mm in the root zone.

Seedling emergence: Satisfactory.

Workability: Firm surface is easily worked.

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 -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	6.6	5.6	0	0.16	-	2.44	58	454	8.7	1.8	1.04	555	19.8	1.58	-	10.5	7.05	1.25	1.11	-	1.4
0-19	6.4	5.2	0	0.13	-	1.94	52	275	9.7	1.5	0.76	465	18.4	1.31	17	6.18	4.93	0.99	0.65	5.2	1.1
19-47	7.6	6.5	0	0.09	-	0.49	8	292	5.9	1.9	0.69	100	33.4	1.10	20	8.17	7.52	2.29	0.70	11.4	1.1
47-68	9.2	8.2	1.7	0.29	-	0.35	4	319	9.8	2.9	0.59	30	27.3	1.13	24	8.77	8.63	4.19	0.78	17.4	1.0
68-78	9.5	8.5	1.8	0.43	-	0.19	<1	278	23.6	4.1	0.46	20	13.4	1.09	21	6.75	7.71	4.64	0.61	22.0	0.9
78-88	9.6	8.5	13	0.57	-	0.12	<1	262	38.2	4.0	0.30	7	1.89	1.04	21	7.29	7.97	5.21	0.61	24.8	1.0
88-126	9.5	8.5	2.1	0.54	-	<0.05	2	182	42.2	3.9	0.25	10	13.6	1.04	15	4.52	5.78	3.86	0.41	25.7	0.9
126-160	9.5	8.3	20	0.54	-	0.06	<1	207	43.2	4.0	0.23	5	1.70	1.03	13	4.60	5.03	3.33	0.47	25.6	0.8

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.