LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Hard massive loamy sand to sandy clay loam, between 20 and 60 cm thick, sharply overlying a yellow, grey and brown mottled very firm blocky clay, sometimes calcareous with depth*

Landform: Gently inclined lower slopes and level flats in the Mt. Lofty Ranges

Substrate: Alluvial clay

Vegetation: Red gum woodland

Type Site:

Site No.:	CH063	1:50,000 mapsheet:	6628-2 (Onkaparinga)
Hundred:	Kanmantoo	Easting:	308500
Section:	5209	Northing:	6125100
Sampling date:	17/03/94	Annual rainfall:	825 mm average

Lower slope of undulating low hills. Firm surface. Slope 4%.

Soil Description:

Depth (cm)	*Description*
0-10	Dark brown massive loam. Clear to:
10-25	Dark greyish brown massive fine sandy loam. Clear to:
25-45	Light grey massive fine sandy loam with yellow brown mottles and 2-10% quartz gravel. Abrupt to:
45-70	Yellowish brown and dark brown mottled dispersive medium heavy clay with strong very coarse columnar structure and 2-10% quartz gravel. Gradual to:
70-95	Dark greyish brown, yellowish brown and red mottled medium heavy clay with strong very coarse prismatic structure and minor quartz gravel. Gradual to:
95-130	Olive, yellow brown and red mottled heavy clay with strong lenticular structure and minor fine carbonate.

Classification: Hypocalcic, Mottled-Mesonatric, Brown Sodosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Imperfectly drained. Because of the impermeable clay layer from 45 cm and the low lying position of the soil, the profile is likely to remain wet for weeks at a time.

Chemical fertility: The nutrient holding capacity of the soil is moderate at the surface (due to organic matter), low in the subsurface bleached layer, and high in the clay subsoil. Organic carbon levels are moderate and phosphorus is marginal.

pH: Neutral to slightly alkaline throughout - due to the effects of saline irrigation water.

Rooting depth: 95 cm in pit but very few roots below 70 cm.

Barriers to root growth:

Physical: The sodic clay subsoil restricts the ability of roots to fully explore the soil but waterlogging is the main barrier to root growth.

Chemical: High exchangeable sodium and moderate salinity affect sensitive plants.

Waterholding capacity: Approximately 90 mm in rootzone (moderate), although whole profile can store much more.

Seedling emergence: Good

Workability: Good

Erosion Potential:

Water: Moderately 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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.2	6.4	0	0.20	1.73	2.1	25	228	-	1.4	2.4	720	160	5.5	9.8	6.50	2.14	1.13	0.43	11.5
											*0.7	*100	*13	*3. 5						
0-10	7.4	6.7	0	0.16	1.46	2.0	21	126	-	1.0	2.1	610	52	6.0	8.2	4.29	1.81	1.15	0.21	14.0
10-25	7.4	6.5	0	0.12	1.23	1.0	7	110	-	0.7	0.8	340	34	1.1	5.8	3.35	0.82	0.76	0.11	13.1
25-45	7.6	6.7	0	0.07	0.82	0.3	7	141	-	0.4	0.3	160	8.6	0.37	3.6	1.69	0.51	0.50	0.07	13.9
45-70	7.7	6.8	0	0.25	2.36	0.4	<4	102	-	1.9	2.3	79	11	0.35	14.0	4.58	3.57	2.80	0.28	20.0
70-95	7.7	6.6	0	0.18	1.13	0.3	<4	146	-	1.5	-	-	-	-	16.4	6.62	3.09	3.38	0.41	20.6
95-130	7.4	6.7	0.3	0.34	3.38	0.3	<4	266	-	3.5	-	-	-	-	30.2	15.42	6.83	4.82	0.90	16.0

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
* DTPA trace element analyses for "paddock" sample.
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