THICK SAND OVER BROWN MOTTLED CLAY

General Description: *Loamy sand to sandy clay loam surface soil sharply overlying yellow, brown and red mottled clay*

Landform: Slopes of undulating to rolling rises and low hills.

Substrate: Sandy clays and sandstones of Permian glacial valleys

Vegetation: Blue gum woodland

Type Site:

Site No.:	CH102	1:50,000 mapsheet:	6526-4 (Cape Jervis)
Hundred:	Yankalilla	Easting:	245950
Section:	1527	Northing:	6061500
Sampling date:	17/10/96	Annual rainfall:	655 mm average

Midslope of undulating low hills, firm surface, 12% slope.

Soil Description:

Depth (cm)	*Description*
0-12	Dark greyish brown soft single grain light sandy loam. Clear to:
12-27	Brown, dark grey and pale brown speckled soft single grain loamy sand. Clear to:
27-45	Light grey and yellowish brown mottled soft single grain loamy sand with 2-10% quartz gravel. Abrupt to:
45-65	Yellowish brown, grey and red mottled firm heavy clay with strong coarse blocky structure. Clear to:
65-95	Yellowish brown, white, brown and red mottled firm fine sandy light clay with moderate coarse blocky structure. Clear to:
95-110	White, brownish yellow, brown and reddish yellow mottled friable fine sandy light clay with weak very coarse blocky structure.

Classification: Bleached-Mottled, Eutrophic, Brown Chromosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Imperfect. Water will "perch" on top of the impermeable clay subsoil, saturating the bleached layer for weeks at a time.

Fertility: Moderately low natural fertility due to the low clay content of the surface soil. Phosphorus, magnesium, copper and zinc levels are low; other measured elements are satisfactory. Organic carbon levels are high at this site.

pH: Acidic throughout, strongly so at base of profile. Dolomite is required to correct problem.

Rooting depth: 95 cm in pit, but few roots below 65 cm.

Barriers to root growth:

Physical: The hard subsoil clay causes uneven root distribution patterns, thus affecting water and nutrient uptake.

Chemical: There are no chemical barriers.

Waterholding capacity: Approximately 70 mm in rootzone.

Seedling emergence: Good, although water repellence is a problem in some years.

Workability: Good.

Erosion Potential:

Water: High. The slope is moderate, but the soil is highly erodible due to the low strength of the sandy surface.

Wind: Moderate. The sandy surface is easily disturbed.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	6.0	5.3	0	0.08	0.50	3.3	16	244	21	1.2	0.7	362	52	3.0	10.9	6.98	0.95	0.20	0.46	1.8
0-12	5.8	5.0	0	0.05	0.32	2.8	12	196	13	0.9	-	-	-	-	9.4	6.18	0.73	0.23	0.40	2.5
12-27	6.1	5.4	0	0.04	0.19	2.9	7	87	10	0.5	-	-	-	-	11.4	8.81	0.57	0.22	0.16	1.9
27-45	6.8	6.3	0	0.03	0.14	0.3	<4	33	8	0.2	-	-	-	-	1.9	1.39	0.14	0.11	0.05	5.9
45-65	6.6	5.9	0	0.06	0.12	0.6	<4	110	11	1.3	-	-	-	-	12.0	6.61	3.48	0.33	0.31	2.7
65-95	5.9	5.2	0	0.07	0.28	0.3	<4	83	23	1.3	-	-	-	-	8.3	2.73	3.51	0.31	0.22	3.7
95-110	4.8	4.2	0	0.07	0.30	0.2	<4	42	26	1.0	-	-	-	-	5.0	0.93	2.03	0.22	0.07	4.3

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