LOAMY SAND OVER POORLY STRUCTURED RED CLAY

General Description: *Sandy surface soil sharply overlying a coarsely structured red clay with abundant soft carbonate at depth grading to massive sandy sediments*

Landform: Slopes of rises and low hills

Substrate: Massive Tertiary sand, mantled by soft carbonate

Vegetation:

Type Site: Site No.: CH093

1:50,000 sheet:	6627-4 (Noarlunga)	Hundred:	Willunga
Annual rainfall:	550 mm	Sampling date:	29/04/96
Landform:	Mid slope of a low hill, 12% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown soft massive light sandy loam. Clear to:
15-40	Light reddish brown massive soft loamy sand with 2-10% ironstone and quartz gravel. Sharp to:
40-60	Dark reddish brown very hard heavy clay with strong very coarse prismatic structure. Gradual to:
60-90	Dark reddish brown hard heavy clay with coarse prismatic structure. Clear to:
90-110	Yellowish red and dark reddish brown moderately calcareous fine sandy heavy clay with 10-20% soft yellowish red carbonate segregations. Clear to:
110-150	Orange hard massive light sandy clay loam with 2-10% soft carbonate segregations.

Classification: Bleached-Vertic, Calcic, Red Chromosol; thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage Moderately well drained. Water will "perch" on top of the dispersive clay subsoil, saturating the pale coloured subsurface layer for a week or so at a time after rain.

Fertility Natural fertility is moderately low due to the low clay content of the surface soil, but adequate organic carbon levels help nutrient retention. Test data indicate possible deficiencies of copper, zinc and sulphur. Magnesium in the surface soil is low but subsoil levels are excessive. Phosphorus levels are low.

pH Neutral in the surface, alkaline with depth.

Rooting depth Few roots below 110 cm in pit (old almond tree roots).

Barriers to root growth

Physical: The poorly structured dispersive (high magnesium) clay subsoil prevents uniform root proliferation - most growth occurs in the cracks between the prisms of clay.

Chemical: There are no chemical barriers to root growth.

Water holding capacity Approximately 100 mm in potential root zone.

Seedling emergence: Good.

Workability: Good.

Erosion Potential

Water: Moderately high, due to the slope and the high erodibility of the soil.

Wind: Moderately low. The sandy surface will blow if exposed.

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-S 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	
Row	6.8	6.0	0	0.05	0.31	1.3	26	249	4	0.5	1.96	101	51.3	2.71	7.0	5.27	1.04	0.20	0.64	2.9
0-15	6.2	5.2	0	0.03	0.20	0.9	24	158	3	0.2	-	-	-	-	4.7	3.21	0.68	0.15	0.38	3.2
15-40	6.2	5.1	0	0.01	0.12	0.2	4	78	2	0.1	-	-	-	-	3.1	1.94	0.41	0.13	0.18	4.2
40-60	6.5	5.5	0	0.04	0.16	0.7	<4	361	2	1.9	-	-	-	-	30.4	18.2	7.83	0.85	1.43	2.8
60-90	7.2	6.3	0	0.05	0.19	0.3	<4	317	1	2.2	-	-	-	-	26.0	15.7	6.10	0.67	0.96	2.6
90-110	8.6	7.9	8.2	0.13	0.43	0.1	<4	228	2	1.6	-	-	-	-	18.3	13.0	4.46	0.58	0.61	3.2
110-150	8.6	8.0	0.5	0.12	0.55	0.1	<4	193	4	1.2	-	-	-	-	13.0	9.26	3.32	0.49	0.49	3.8

Note: Row sample bulked from 20 cores (0-10 cm) taken along old almond tree rows.
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.