GRADATIONAL DARK SILTY LOAM

General Description: *Dark crumbly silty loam becoming more clayey with depth, over silty alluvium*

Landform: Alluvial flats.

Substrate: Alluvial silty loam to silty clay loam.

Vegetation: Red gum (E. camaldulensis) woodland.

Type Site:

Site No.:	CH129	1:50,000 mapsheet:	6727-3 (Alexandrina)
Hundred:	Freeling	Easting:	321640
Section:	3555	Northing:	6092730
Sampling date:	25/06/02	Annual rainfall:	395 mm average

Alluvial flat, 0% slope. Firm surface with no stones. Vineyard.

Soil Description:

Depth (cm)	*Description*
0-12	Dark brown firm light silty loam with moderate fine granular structure. Abrupt to:
12-40	Dark brown hard silty clay loam with strong fine polyhedral structure. Diffuse to:
40-70	Dark brown hard silty loam with weak medium subangular blocky structure. Gradual to:
70-115	Dark brown firm massive silty loam. Diffuse to:
115-150	Dark brown firm massive light silty clay loam.

Classification: Melanic-Sodic, Eutrophic, Black Dermosol; medium, non-gravelly, silty / silty, moderate

Summary of Properties

Drainage: Rapidly drained. The soil rarely remains saturated for more than a few hours at a time following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. Concentrations of all measured nutrient elements are adequate to high. Organic carbon levels are also high.

pH: Neutral to slightly alkaline throughout.

Rooting depth: Vine roots continue below 150 cm in the pit.

Barriers to root growth:

Physical: There are no apparent barriers.

Chemical: There are no apparent barriers, although sodicity may build up over a long period under irrigation.

Waterholding capacity: Over 190 mm total available in the profile. Approximately 95 mm is readily available.

Seedling emergence: Satisfactory, although silty soils tend to seal over if organic matter levels are degraded.

Workability: The firm surface is easily worked, but silty soils are prone to compaction from excessive machinery loads.

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)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	7.5	6.6	0	0.17	-	2.83	150	717	20.9	2.3	12.0	63	9.74	42.3	18.2	11.93	3.79	0.67	1.77	3.7
0-12	7.5	6.6	0	0.18	-	3.13	178	734	21.3	2.4	15.2	61	9.55	41.8	18.5	11.87	3.98	0.77	1.84	4.2
12-40	7.8	6.8	0	0.11	-	1.82	19	455	14.8	1.5	5.69	46	8.57	13.8	18.0	11.16	4.74	1.06	1.02	5.9
40-70	7.8	6.7	0	0.07	-	1.16	11	328	10.5	1.0	1.50	19	7.05	1.95	13.6	8.65	3.33	0.80	0.79	5.9
70-115	7.8	6.7	0	0.05	-	0.64	9	248	8.4	0.7	0.86	11	4.55	0.84	8.5	5.35	2.06	0.58	0.52	6.8
115-150	7.7	6.6	0	0.08	-	0.64	16	312	21.8	0.6	1.50	17	6.02	0.64	12.6	7.71	3.20	1.02	0.70	8.1

Note: Row sample bulked from cores (0 - 10 cm) taken along the planting rows near the pit.
Sum of cations is a measure of the soil's capacity to store and release major nutrient elements. In neutral to alkaline soils the sum is approximately equivalent to CEC (cation exchange capacity).
ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC, which at this site is estimated from the sum of cations.

Further information: DEWNR Soil and Land Program