GRADATIONAL LOAM OVER CLAY ON WEATHERED ROCK

General Description: *Medium thickness brown sandy loam to loam over a gravelly sandy clay loam to clay loam grading to red or orange well structured clay over weathering fine grained basement rock*

Landform: Rolling low hills

Substrate: Weathered shale

Vegetation: Eucalyptus oblique forest. Current land use - viticulture

Type Site:

Site No.:	CH175B	1:50,000 mapsheet:	6628-2 (Onkaparinga)
Hundred:	Onkaparinga	Easting:	302270
Section:		Northing:	6136550
Sampling date:	09/12/2012	Annual rainfall:	920 mm average

Upper slope of low hill, 20% slope. Elevation is 520 m, with SW aspect. Firm surface. This section of vineyard has added compost.

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown friable fine sandy loam with strong granular structure. Clear to:
15-27	Reddish brown firm sandy clay loam with moderate subangular blocky structure and 10% shale fragments. Clear to:
27-45	Brown firm medium clay with strong angular blocky structure and 20% shale fragments. Gradual to:
45-90	Brown firm light medium clay with strong angular blocky structure and 40% shale fragments. Clear to:
90-120	Weathering shale.

Classification: Haplic, Eutrophic, Brown Dermosol; medium, slightly gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. No part of the profile is likely to remain wet for more than a week or so at a time.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. CEC of 10 cmol(+)/kg in deep subsoil indicates that the soil's clay minerals can satisfactorily retain nutrient elements. Retention capacity in the surface is high due to organic carbon levels. Phosphorus and potassium levels are satisfactory (although slightly low between drippers), with good P holding capacity. Boron and sulphur levels are low in pit and mid-row. Copper and magnesium levels are high (row and under-dripper respectively).

pH: Neutral to slightly acidic at the surface, slightly acidic with depth. Neutral (rather than naturally acidic) surface soil is presumed to be caused by alkaline irrigation water.

Rooting depth: Moderate root growth to 90 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers above the basement rock.

Chemical: There are no apparent chemical barriers, other than slightly elevated salinity at the surface (caused by irrigation water).

Waterholding capacity: Approximately 105 mm (total) in potential rootzone (upper 90 cm), with readily available capacity (RAW) of approximately 40 mm.

Seedling emergence: Good.

Workability: The surface soil is readily worked.

Erosion Potential:

Water: Moderately high due to land slope. Perennial crop with good ground cover minimises hazard.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO_3 mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Under Drip	7.5	6.5		0.164	74	4.03	15	43	193	242	11.2	0.8	35.7	88	19.0	7.30	29	27	20	5.1	1.1	0.5
Between Drip	6.9	6.4		0.179	129	4.93	10	27	180	256	10.0	0.8	36.7	94	22.2	5.17	24	22	16	4.5	0.97	0.7
Mid Row	6.5	6		0.164	72	4.64	36	34	178	183	8.3	0.8	15.0	96	16.8	3.23	24	21	18	2.0	0.32	0.4
0-15	6.4	6	0.24	0.255	206	3.33	28	47	160	196	9.0	0.7	20.3	155	79.1	2.33	23	21	15	4.6	0.67	0.5
15-27	6.3	5.3	0.21	0.077	-	2.94	5	40	172	98	5.0	0.5	9.16	81	11.3	1.25	15	11	6.7	3.6	0.39	0.3
27-45	6.3	5.3	0.21	0.028	-	0.67	2	31	113	82	4.3	0.3	1.69	33	4.48	0.38	11	6	2.9	2.6	0.26	0.2
45-90	6.4	5.4	< 0.20	0.029	-	0.45	1	15	-	73	51.6	0.4	0.85	15	3.84	0.22	11	5	2.1	2.8	0.27	0.2

Note: Trace elements in 0-15cm layer analysed using EDTA.
CEC (exchangeable cation 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