HARD SANDY LOAM OVER RED CLAY

General Description: *Hard setting sandy loam over a coarsely structured red clay, weakly calcareous with depth*

Landform: Gently inclined outwash fans and alluvial plains

Substrate: Fine to medium grained alluvium, mantled by minor carbonates

Vegetation:

Type Site:

Site No.:	CL013	1:50,000 mapsheet:	6729-3 (Truro)
Hundred:	Moorooroo	Easting:	317900
Section:	145	Northing:	6182650
Sampling date:	28/07/92	Annual rainfall:	510 mm average

Very gentle slope of 1%. Hard setting surface. No stone. Vineyard.

Soil Description:

Depth (cm)	*Description*
0-21	Brown hard massive sandy loam. Abrupt to:
21-52	Dark red hard heavy clay with strong coarse angular blocky structure. Gradual to:
52-90	Yellowish red hard weakly structured clay loam. Clear to:
90-100	Yellowish red hard weakly structured moderately calcareous clay loam with minor hard carbonate nodules.

Classification: Haplic, Hypocalcic, Red Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Imperfectly to moderately well drained. The upper 20 cm of the clayey subsoil is very tight, restricting water movement, and causing water to perch, possibly for more than a week following heavy or prolonged rainfall.

Fertility: Natural fertility is moderately high. Exchangeable cation data indicate that the clayey subsoil has a high nutrient retention capacity, but the sandy loam surface soil's capacity is moderate. This can only be improved by increasing organic matter levels, although 1.54% organic carbon is near the maximum achievable for this soil. Levels of nutrient elements are satisfactory, although phosphorus levels are very high.

pH: Slightly acidic at the surface, alkaline with depth.

Rooting depth: 52 cm in pit, with few roots below 21 cm.

Barriers to root growth:

Physical: The tight clayey subsoil is significantly restricting root growth. This is difficult to correct in an established vineyard, but is a replant situation, the soil may benefit from ripping and gypsum application, even though it is not sodic.

Chemical: There are no chemical restrictions to root growth.

Waterholding capacity: Approximately 130 mm of total available water in the upper 100 cm (theoretically). In the actual rootzone, 55 mm is available, of which only 25 mm is readily available.

Seedling emergence: Fair to poor due to hard setting, sealing surface.

Workability: Fair to poor due to narrow moisture range for effective working.

Erosion Potential:

Water: Low. Although soil is highly erodible, slope is very slight.

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)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	6.4	5.8	0	0.13	0.62	1.54	198	828	-	1.6	3.4	47	11.7	5.7	4.7	3.5	0.8	0.18	1.80	3.8
0-21	6.3	5.8	0	0.10	0.48	1.00	189	604	-	1.4	3.7	30	10.9	3.4	6.9	4.9	1.1	0.14	1.13	2.0
21-52	7.4	6.9	0	0.10	0.36	0.48	42	494	-	2.8	1.9	8.0	2.4	0.3	17.1	11.3	3.6	0.43	1.22	2.5
52-90	7.6	7.1	0	0.12	0.78	0.23	5	349	-	1.8	1.3	5.7	4.7	0.1	12.6	7.9	3.4	0.43	0.62	3.4
90-100	8.2	7.9	0.5	0.28	1.60	0.18	<5	330	-	1.6	1.1	4.8	2.7	0.2	10.2	6.6	3.0	0.42	0.57	4.1

Note: Row sample bulked from cores (0-10 cm) taken from along rows near 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