

## SILTY LOAM OVER BLACK CLAY

**General Description:** *Medium to thick dark grey firm massive sandy to silty loam overlying a black coarsely structured clay, becoming grey and yellow brown mottled and moderately calcareous with depth*

**Landform:** Flats and lower slopes

**Substrate:** Alluvial clay, mantled by soft to nodular carbonate

**Vegetation:** Red gum woodland



<b>Type Site:</b>	Site No.:	CL009	1:50,000 mapsheet:	6628-1 (Barossa)
	Hundred:	Barossa	Easting:	307000
	Section:	513	Northing:	6164350
	Sampling date:	13/07/92	Annual rainfall:	585 mm average

Lower slope of an undulating rise, 4% slope. Firm surface, no stones. Vineyard.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-40	Very dark greyish brown massive silty loam. Abrupt to:
40-56	Black medium clay with strong angular blocky structure. Gradual to:
56-81	Dark greyish brown heavy clay with strong angular blocky structure. Gradual to:
81-100	Dark brown medium clay with weak subangular blocky structure.

**Classification:** Calcic, Subnatric, Black Sodosol; thick, non-gravelly, silty / clayey, deep



## Summary of Properties

- Drainage:** Moderately well drained. Water tends to perch on the clayey subsoil, a problem which can be exacerbated by water flowing (surface or subsurface) from higher ground. Lower surface soil and upper subsoil likely to remain wet for a week or so following heavy or prolonged rainfall.
- Fertility:** Natural fertility is moderately high. Exchangeable cation data indicate that nutrient retention capacity of subsoil is high, but surface relies on organic matter (relatively low at this site). Concentrations of all measured nutrient elements are satisfactory.
- pH:** Neutral at the surface, alkaline with depth.
- Rooting depth:** 80 cm in pit.
- Barriers to root growth:**
- Physical:** The coarsely structured subsoil prevents uniform root distribution.
- Chemical:** There are no chemical barriers, although long term irrigation may lead to accumulation of soluble salts and increased sodicity. Existing sodicity may be a result of irrigation
- Waterholding capacity:** Approximately 110 mm in rootzone, of which approximately 50 mm is readily available.
- Seedling emergence:** Good to fair. Surface soil can seal over and set hard.
- Workability:** Good to fair. Organic matter levels must be maintained (1.5% organic carbon is desirable in this location), to ensure satisfactory workability. Gypsum may help.
- Erosion Potential:**
- Water:** Moderate. Silty surface soils with slowly permeable subsoils are highly erodible, especially on lower slopes which may be subject to run-on water flow.
- Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	6.9	6.8	0	0.10	0.50	1.16	48	354	-	1.2	4.4	24	20.9	1.3	9.4	10.1	1.0	0.24	0.47	2.6
0-40	6.6	6.2	0	0.07	0.30	1.04	6	313	-	0.8	1.3	35	16.2	0.3	8.1	9.9	1.7	0.27	0.33	3.3
40-56	7.0	6.4	0	0.12	0.37	0.99	<5	278	-	1.2	2.4	44	13.0	0.3	29.2	15.0	12.2	2.18	0.60	7.5
56-81	7.7	7.0	0	0.17	0.60	0.80	<5	276	-	2.0	1.6	23	7.3	0.2	34.5	14.9	14.5	3.13	0.61	9.1
81-100	8.7	8.1	8.9	0.31	0.87	0.40	<5	209	-	3.0	1.0	12	3.0	0.1	29.0	13.0	12.4	3.08	0.45	10.6

**Note:** Row sample bulked from cores (0-10 cm) taken from along the rows 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](#)

