

Site code¹	MM187
Location	Werneth (Colac Ballarat Road), Rokewood district, south-west Victoria
Landform	Gently undulating lava plains
Geology	Quaternary Newer Volcanics: <i>extrusive tholeiitic to alkaline basalts, minor scoria and ash</i>
Element	Side slopes

Profile morphology

Horizon	Depth (cm)	Description
A1	0–10	Dark brown (10YR3/3); fine sandy loam; apedal massive structure; weak consistence (dry); common fine ferruginous concretions; clear boundary to:
A2	10–15	Yellowish brown (10YR5/4), light grey (10YR7/2 dry) conspicuously bleached; fine sandy clay loam; firm consistence (dry); sharp boundary to:
B21	15–40	Very dark greyish brown (10YR3/2 moist) with red (5YR4/4) mottles; heavy clay; strong coarse blocky structure; strong consistence (dry); gradual boundary to:
B22	40–50	Yellowish brown (10YR5/4); medium clay; strong medium blocky structure; very firm consistence (moderately moist); clear boundary to:
B23	50+	Light yellowish brown (2.5Y6/4); medium clay; moderate fine blocky structure; firm consistence (moderately moist).

ASC: Eutrophic, Mottled-Hypernatric, Black Sodosol

Analytical data²

Site MM187 Horizon	Sample depth cm	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity
		H ₂ O	CaCl ₂	dS/m	%	cmol _c /kg	cmol _c /kg	cmol _c /kg	cmol _c /kg	mg/kg	cmol _c /kg
A1	0–10	5.9	N/R	0.13	N/R	1.9	1.9	1.2	0.3	7	3.9
A2	10–15	6.3	N/R	0.16	0.03	2	2	0.6	1.1	0	7.3
B21	15–40	8.3	N/R	0.6	0.06	6.3	6.3	1.5	7.3	N/R	0
B22	40–50	8.5	N/R	0.61	0.1	5.6	5.6	1.5	9.4	N/R	0
B23	50+	9.3	N/R	1.01	0.18	16.2	16.2	0.9	9.6	N/R	0

Site MM187 Horizon	Sample depth cm	FC (-10kPa) %	PWP (-1500kPa) %	KS %	FS %	Z %	C %	Org C %	Bulk density t m ⁻³
A1	0–10	18.9	12.7	18	46	18	14	4	1.23
A2	10–15	N/R	N/R	19	42	18	19	1.6	N/R
B21	15–40	54.2	36.7	7	19	13	57	N/R	1.15
B22	40–50	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B23	50+	N/R	N/R	4	13	9	41	N/R	N/R

Management considerations

These soils have hardsetting topsoils and exhibit a strong texture contrast between the surface soil and the subsoil with a bleached A2 horizon. The bleached A2 horizon is an indication of restricted drainage, poor soil structure (often massive) and low organic matter and nutrients. The fine ferruginous segregations can

¹ Source: Maher JM, Martin JJ 1987 Soils and landforms of south-western Victoria. Department of Agriculture and Rural Affairs. Research Report No. 40.

² Source: Government of Victoria, State Chemistry Laboratory.

Maher & Martin Reference Site

restrict root penetration and limit available water holding capacity where there are sufficient amounts, often forming a discontinuous or continuous pan where concentrated (>50%). Sodic and mottled subsoils are other key features of this soil and are an indication of periodic waterlogging.

Improvement of soil structure through increased organic matter would be useful while management options include reduced tillage, improving organic matter content and altering the subsoil through artificial drainage (ripping, mole drainage) and/or chemical amelioration.