

WAC Walker's Creek Land System

Flats and outwash fans of the Walkers Creek - Salt Creek catchment between Daveyston and Freeling

- Area:** 45.2 km²
- Annual rainfall:** 450 – 500 mm average
- Geology:** Fine grained alluvium, mantled by a veneer of finely divided aeolian carbonates.
- Topography:** Gently to very gently inclined outwash fans abutting a low range to the east. The fans have slopes of 1-4% with a west to south west aspect. The two main watercourses in the catchment, viz. Walker's Creek and Salt Creek arise in the eastern foothills and flow in a south westerly direction, joining south of Sheoak Log.
- Elevation:** 210 m in the north east to 110 m in the south.
- Relief:** There is no topographic relief due to the even slopes. Maximum elevation difference from east to west is 40 m.
- Soils:** The soils are deep with loamy to clayey surfaces and red clayey subsoils. Texture contrast, gradational and uniform clayey soils all occur.

Main soils

- D3/D2** Hard loam to clay loam over red (dispersive) clay
M2 Gradational clay loam

Minor soils

- A3** Gradational calcareous loam
E2/E1 Red / black cracking clay
F1 Loam over brown clay
M1 Deep sandy loam

- Main features:** The Walkers Creek Land System is flat to gently inclined with deep fertile soils. Poor soil structure, with effects on infiltration, workability and crop emergence is the main limitation. However, waterlogging and associated salinity also limit productivity in places, particularly adjacent to the main watercourses. Boron toxicity is also likely to be a problem in drier seasons.



Soil Landscape Unit summary: 5 Soil Landscape Units (SLUs) mapped in the Walker's Creek Land System

SLU	% of area	Main features #
JEA	37.8	Alluvial flats and outwash fans formed on fine to medium grained alluvium.
JEB	36.7	JEA Very gently inclined fans with slopes of less than 2%.
JEE	5.4	JEB Gently inclined fans with slopes of 2-4%.
JET	7.9	JEE Well defined alluvial flats of Salt Creek. JET Marginally saline flats of Walker's Creek. Main soils: <u>hard loam over red (dispersive) clay</u> - D2/D3 (V), with <u>gradational clay loam</u> - M2 (L), <u>deep sandy loam</u> - M1 (M), near creeks, <u>red / black cracking clay</u> - E2/E1 (M), <u>gradational calcareous loam</u> - A3 (M) and <u>loam over brown clay</u> - F1 (M). These soils are deep and fertile, but are generally poorly structured. Hard setting surfaces restrict water infiltration, increase susceptibility to erosion, affect workability and retard emergence and early crop growth. Dispersive subsoils in the D3 soils impede downward water movement and cause waterlogging. This in turn aggravates any salinity problem. Subsoil salt and boron occur in this catchment, and saline seepages are widespread on the western side (JET). There is minor watercourse erosion on the gentle slopes of JEB.
KUA	12.2	Alluvial flats formed on clayey alluvium. Slopes are less than 2%. Main soils: <u>gradational calcareous loam</u> - A3 (E), <u>red cracking clay</u> - E2 (E) and <u>hard clay loam over red clay</u> - D2 (E). These soils are deep and fertile, but their medium to fine textured surfaces become sticky and difficult to manage once wet. Subsoil salt and boron may affect crop yields in dry seasons.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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| (D) Dominant in extent (>90% of SLU) | (C) Common in extent (20–30% of SLU) |
| (V) Very extensive in extent (60–90% of SLU) | (L) Limited in extent (10–20% of SLU) |
| (E) Extensive in extent (30–60% of SLU) | (M) Minor in extent (<10% of SLU) |

Detailed soil profile descriptions:

- A3** Gradational calcareous loam (Regolithic, Hypocalcic Calcarosol)
Moderately calcareous loam grading to a moderately calcareous clay loam to light clay, continuing without substantial carbonate accumulation.
- D3/D2** Hard loam to clay loam over red (dispersive) clay (Calcic, Red Sodosol / Chromosol)
10 - 45 cm hard fine sandy loam to clay loam abruptly overlying a red coarsely structured dispersive (Sodosol) or well structured (Chromosol) clay, calcareous from about 65 cm, grading to alluvium.
- E2/E1** Red / black cracking clay (Epipedal, Red / Black Vertosol)
15 cm strongly structured, seasonally cracking light clay grading to a coarsely structured red or black heavy clay, calcareous from 65 cm.
- F1** Loam over brown clay (Calcic, Brown Chromosol)
25 cm hard loam over a moderately well structured brown clay, calcareous from about 55 cm.
- M1** Deep sandy loam (Basic, Regolithic, Brown-Orthic Tenosol)
60 - 80 cm brown fine sandy loam to silty loam over variable alluvium or buried soil materials.
- M2** Gradational clay loam (Calcic, Red Dermosol)
20 - 30 cm clay loam grading to a well structured red clay, calcareous from about 60 cm, over alluvium deeper than 100 cm.

Further information: [DEWNR Soil and Land Program](#)

