

HIE High Eden Land System

High elevation range between Mengler Hill and Mt. Pleasant

Area: 58.0 km²

Annual rainfall: 620 – 750 mm average

Geology: The land is formed on metasandstones of the Tappanappa and Backstairs Passage Formations, with remnant laterites and Tertiary sands on some higher ground. Locally derived coarse grained sediments occur in valleys.

Topography: The system is a high elevation range, with a spine extending in a north - south direction for its full length. It includes the headwaters of Tanunda Creek in the north, and the Marne River in the south. The topography is mainly a series of gently to moderately inclined slopes ranging from 3% to 30% coming off the main ridge. Water courses emanate in all directions from the central watershed. Their valleys are narrow with well defined channels which are commonly eroded. There is sporadic saline seepage.

Elevation: 390 m in the south east to 590 m on the central ridge

Relief: 20 - 90 m

Soils: The characteristic soil features of these landscapes are sandy textures and highly leached profiles. Texture contrast soils are common, with grey sandy and stony surfaces and yellow clayey subsoils. Shallow stony soils on hard rock are dominant on steeper slopes. Deep sandy alluvial soils are characteristic of watercourses.

Main soils

Hillslopes

K4a Loamy sand over brown clay on micaceous sandstone

K4b Loamy sand over brown clay on quartzite

L1 Shallow stony loamy sand

K3 Sandy loam over red clay on rock

Minor soils

Hillslopes

G5 Bleached sand over acidic clay

K1 Gradational loam over rock

K5 Gradational sandy loam on rock

Valleys and drainage depressions

F1 Sandy loam over brown clay

G2 Thick sand over sandy clay loam

G3 Thick sand over clay

M1 Deep gradational sand

M3 Deep gravelly loamy sand

Main features: The High Eden Land System is characterized by undulating to moderately steep slopes coming off a long north - south ridge. The soils are typically sandy, stony and infertile. Some are shallow over quartzitic rocks, while others are deep but with tight subsoil clays, causing waterlogging. Remnant deposits of Tertiary sands and associated laterites are often uncleared, presumably due to either low fertility or rockiness. All soils are highly erodible. Waterlogging, water course erosion and minor salinization are problems of the lower lying areas and drainage depressions.



Soil Landscape Unit summary: 6 Soil Landscape Units (SLUs) mapped in the High Eden Land System:

SLU	% of area	Main features #
AIC	40.5	Rolling low hills with relief of up to 90 m and slopes of 12-30%. There is 10-20% surface quartzite, sandstone and ironstone. Main soils: <u>shallow stony loamy sand</u> - L1 (L) and <u>loamy sand over brown clay</u> - K4a/K4b (E) formed on basement rock. Associated soils are <u>sandy loam over red clay</u> - K3 (L) on rock, <u>bleached sand over acidic clay</u> - G5 (L) on Tertiary remnants and <u>gradational loam</u> - K1 (L) on deeply weathered rock. <u>Deep gravelly loamy sand</u> - M3 (M) and <u>deep gradational sand</u> - M1 (M) occur in water courses. These soils are shallow to moderately deep and generally infertile and acidic. The loamy sand over clay (K4b) soils with tight clay subsoils are imperfectly drained. Most soils are highly erodible due to poorly structured sandy surfaces. Water course erosion is common. There is extensive waterlogging and minor saline seepage in drainage depressions.
AnC	0.6	Moderately steep to steep slopes with 20-50% outcropping north - south reefs of rock. Main soils: <u>shallow stony loamy sand</u> - L1 (E), with <u>gradational sandy loam over rock</u> - K5 (C) and <u>loamy sand over brown clay</u> - K4a/K4b (L). This small area is too steep and rocky for any uses other than rough grazing.
CRC CRD	2.1 49.6	Rises and low hills formed on basement rock, with limited areas of remnant Tertiary sediments. There is 2-10% surface quartzite, sandstone and ironstone, but little rock outcrop. CRC Undulating rises with relief up to 30 m and slopes of 3-6%. CRD Undulating low hills with relief up to 50 m and slopes of 6-12%. Main soils: <u>loamy sand over brown clay</u> - K4a/K4b (E) and <u>shallow stony loamy sand</u> - L1 (C) formed on basement rock. Limited in extent are <u>sandy loam over red clay</u> - K3 (L) on rock, <u>gradational sandy loam over rock</u> - K5 (M), <u>bleached sand over acidic clay</u> - G5 (L) on Tertiary remnants and <u>gradational loam</u> - K1 (L) on deeply weathered basement rocks. <u>Deep gravelly loamy sand</u> - M3 (M) and <u>deep gradational sand</u> - M1 (M) occur in water courses. These soils are moderately deep and generally infertile and acidic. The loamy sand over clay soils (K4b) with tight clay subsoils are imperfectly drained. Most soils are highly erodible due to poorly structured sandy surfaces. Water course erosion is common. There is extensive waterlogging and minor saline seepage in drainage depressions.
LIO Lle	3.7 3.5	Drainage depressions and valley flats formed on localized gritty and sandy alluvium. Water courses are eroded to some extent. There is minor saline seepage. LIO Depressions with sporadically eroded water courses. Lle Depressions with continuously eroded water courses. Main soils: <u>deep gradational sand</u> - M1 (E), <u>deep gravelly loamy sand</u> - M3 (E) and <u>sandy loam over brown clay</u> - F1 (C), with <u>thick sand over sandy clay loam</u> - G2 (L) and <u>thick sand over clay</u> - G3 (L). These soils are deep but infertile, imperfectly drained and erodible. Water courses (which are commonly eroded) are dominant features, restricting the available area for development.

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

- (D) Dominant in extent (>90% of SLU)
(V) Very extensive in extent (60–90% of SLU)
(E) Extensive in extent (30–60% of SLU)

- (C) Common in extent (20–30% of SLU)
(L) Limited in extent (10–20% of SLU)
(M) Minor in extent (<10% of SLU)



Detailed soil profile descriptions:*Hillslopes*

- K4a** Loamy sand over brown clay (Bleached-Sodic, Eutrophic, Brown Chromosol)
Thick grey brown loamy sand with a bleached and gravelly A2 horizon, overlying a dark brown, grey, yellow and red mottled clay with strong blocky structure, grading to weathered sandy schist or micaceous sandstone by 100 cm.
- K4b** Loamy sand over brown clay on quartzite (Bleached-Mottled, Mesotrophic, Brown Kurosol)
Thick grey loamy sand with a bleached and quartz gravelly A2 layer, sharply overlying a yellowish brown and grey mottled clay with coarse blocky structure, grading to quartzitic sandstone.
- L1** Shallow stony loamy sand (Acidic, Lithic, Bleached-Leptic Tenosol)
Thick grey gravelly loamy sand with a bleached and very quartz stony A2 horizon overlying quartzitic sandstone within 50 cm of the surface.
- G5** Bleached sand over acidic clay (Bleached, Mesotrophic, Brown Kurosol)
Medium thickness grey brown loamy sand with a very gravelly and bleached A2 layer, overlying a brown and yellow light clay grading to coarse Tertiary sandstone.
- K3** Sandy loam over red clay on rock (Eutrophic, Red Chromosol)
Medium thickness brown massive loamy sand to sandy loam with a paler coloured sandier and quartz gravelly A2 layer, overlying a red coarse blocky clay with sandstone and quartz fragments, grading to weathered metasandstone between 50 and 100 cm.
- K1** Gradational loam over rock (Mesotrophic, Red Kandosol)
Red brown loam grading to a red massive clay loam with ferruginized siltstone fragments, overlying a red clay grading to grey kaolinitic clay forming in soft weathering metasiltstone, deeper than 200 cm.
- K5** Gradational sandy loam on rock (Mesotrophic, Brown Kandosol / Paralithic, Brown-Orthic Tenosol)
Thick to very thick loamy sand to sandy loam becoming slightly more clayey at depth with variable gravel, over weathering rock at about 100 cm.

Valleys and drainage depressions

- F1** Sandy loam over brown clay (Bleached-Mottled, Eutrophic, Brown Chromosol)
Very thick loamy sand to sandy clay loam surface soil, sandier and very gravelly at base, overlying a brown, grey and red mottled, gravelly sandy clay loam to light clay, grading to variable gritty and gravelly alluvium.
- G2** Thick sand over sandy clay loam (Bleached, Eutrophic, Brown Chromosol)
Thick greyish sand with a bleached A2 layer, sharply overlying a brown mottled moderately well structured sandy clay loam, grading to coarse grained alluvial sediments.
- G3** Thick sand over clay (Eutrophic, Brown Sodosol)
Thick greyish sand with a bleached A2 layer, sharply overlying a brown mottled dispersive sandy clay to clay, grading to coarser grained material with depth.
- M1** Deep gradational sand (Mesotrophic, Brown Kandosol)
Very thick brown sand with bleached and rusty mottles, overlying a massive brown clayey sand to light sandy clay loam at about 100 cm, grading to coarse textured alluvium.
- M3** Deep gravelly loamy sand (Petroferric, Bleached-Leptic Tenosol)
Very thick grey gravelly loamy sand, with a bleached and extremely stony (quartz) A2 horizon, commonly overlying iron cemented sand.

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

