

MCO Mount Compass Land System

Undulating to rolling low hills, widespread in the area bounded by Ashbourne, Myponga, Delamere and Victor Harbor.

Area: 313.1 km²

Annual rainfall: 520 – 910 mm average

Geology: The geology of the land is characterized by massive clayey sands, sandy clays and minor clays deposited under glacial and fluvio-glacial conditions during the Permian period. Typically the sandier sediments have indurated into massive but relatively soft sandstones with distinctive red, mustard yellow and grey mottlings. Reworking of the sandy materials by wind has apparently been extensive, with areas of drift sand accumulation scattered throughout. Erosion of these sediments and their associated soils has produced a variety of valley floor deposits, but sandy textures are dominant. However, clayey and peat deposits occur on some flats. Sandy soils forming in situ on slopes, or on transported valley floor materials commonly have subsoil accumulations of sesquioxides of iron and / or aluminium, complexed with organic compounds. This material is often hard and brittle, and commonly called "coffee rock".

Topography: The landscape is typically undulating to rolling with slopes usually less than 30%, but short steeper slopes occur occasionally. There is evidence that the ancient glacial valleys were largely filled with sediment, most of which has since been eroded. The remnant sediments in the old glacial valley floors form the topography of this Land System. There is also evidence that the sediments were extensively lateritized, as remnant deep weathering profiles with ironstone and occasional breakaway features dot the landscape as isolated crests. Reworking of sandy sediments by wind has produced mainly sandspreads, but longitudinal dunes occur in places. Alluvial depositional areas are relatively minor overall, but are generally swampy, and peaty in places.

Elevation: 10 m near Victor Harbor to 340 m in the north

Relief: 20 m to 80 m

Soils: The soils typically have thick bleached sandy acidic surfaces. Subsoils vary from clay through sandy clay and sandy clay loam to clayey sand or sand, sometimes cemented to "coffee rock". Ironstone soils are common on crests, and a range of deep sandy to clay loamy soils and peats occurs on valley floors and lower slopes.

Main soils

Soils formed on glacial sediments

F1a Sandy loam over brown clay

G3a Sand over brown clay

G5 Sand over acid clay

Soils formed on outwash sediments

G3b Thick sand over sandy clay

Minor soils

Soils formed on glacial sediments

H3a Bleached siliceous sand

I1 Highly leached sand

I2a Imperfectly drained highly leached sand

M3 Shallow stony soil



*Soils formed on deeply weathered and lateritized glacial sediments***J2** Ironstone soil**J3** Shallow ironstone soil on ferricrete*Soils formed on deeply weathered basement rocks***F1/K4** Sandy loam over brown clay on weathered rock*Soils formed on outwash sediments***F1b** Loam over brown clay**F2** Sandy loam over poorly structured brown clay**M1** Bleached loamy sand over sandy clay loam**H3b** Deep bleached siliceous sand**I2b** Wet highly leached sand**M2** Deep clay loam**N1** Peat

Main features: The Mount Compass Land System is characterized by undulating to rolling landscapes with predominantly sandy soils. Variable subsoils of sandy clay, heavy clay, coffee rock or ironstone occur. These influence drainage. On rising ground, drainage is generally moderate to good, although wet areas occur. Low fertility, high acidification potential and some susceptibility to water repellence and wind erosion are the main features. Irrigation potential is usually high. On low lying areas, imperfect to poor drainage is usually the main limitation. If drains are installed, productivity on flats and lower slopes can be high.

Soil Landscape Unit summary: 37 Soil Landscape Units (SLUs) mapped in the Mt Compass Land System:

SLU	% of area	Main features #
AeC AeD	0.1 < 0.1	<p>Rolling to very steep low hills and hills formed on schists of the Barossa Complex. Surface rock and stone are variable, with very rocky patches occurring most commonly on steepest slopes.</p> <p>AeC Rolling low hills with minor to moderate rock and stone, and well defined, narrow drainage depressions; relief is up to 100 m and slopes are 18-30%.</p> <p>AeD Steep to very steep and very rocky hillslopes with very narrow crests and drainage depressions; relief is up to 175 m and slopes are 30-80%.</p> <p>Most soils have texture contrast profiles with sandy loam surfaces overlying friable clayey subsoils forming in fresh weathering rock. On upper slopes where rocks are deeply weathered and kaolinized, soils are similar but deeper. Shallow stony soils are common on rocky and steep slopes. Deeper texture contrast and stony soils on local alluvium and colluvium occur on lower slopes and drainage depressions.</p> <p>Main soils: <u>Acidic sandy loam over brown clay on schist</u> - K4a (E) on hillslopes <u>Acidic sandy loam over brown clay on kaolinized schist</u> - K4b (L) on upper slopes <u>Shallow stony sandy loam</u> - L1 (E) on steeper rocky slopes <u>Sandy loam over brown or red clay</u> - F1c (L) on deeply weathered rock on lower slopes <u>Sandy loam over brown mottled clay</u> - F1a (M) in drainage depressions <u>Gradational red loamy sand</u> - M1a (M) in drainage depressions</p> <p>The main soils are moderately deep and moderately to well drained. Inherent fertility is relatively low, and soils are highly susceptible to acidification. The land is too steep for uses involving regular cultivation, but there is some potential for perennial horticultural and floricultural crops where water is available.</p>
AiC	0.2	<p><u>Geology:</u> Metasandstones of the Backstairs Passage Formation.</p> <p>AiC Rolling low hills and slopes with relief of 50-100 m and slopes of 16-30%.</p> <p>Main soils: <u>Acidic sandy loam over brown clay on rock</u> - K4a (E) <u>Acidic sandy loam over red clay on rock</u> - K3 (E) <u>Shallow sandy loam on rock</u> - L1a (L) on steeper and rocky slopes <u>Deep loam over brown clay</u> - K2/F1 (M) on lower slopes</p>



AvC	0.3	<p>Dissected southeast facing slopes of old glacial valleys. The slopes are 50-100 m high. Underlying rocks are mixed siltstones, sandstones and quartzites.</p> <p>AvC Moderate slopes of 18-30%.</p> <p>Main soils are texture contrast types on weathering rock:</p> <p><u>Acidic loam over red mottled clay</u> - K2d (E)</p> <p><u>Acidic sandy loam over brown clay</u> - K4a (C)</p> <p><u>Acidic gradational red loam</u> - K1c (C-L)</p> <p><u>Shallow stony sandy loam</u> - L1b (M-L) on steep slopes</p> <p>Although most soils are moderately deep and relatively fertile, the land is too steep for cultivated agriculture. AvC is well suited to perennial crops and pastures but AvJ is too steep and stony for any uses other than light grazing or revegetation.</p>
BhC	0.1	<p>Rises and low hills formed on siltstones, sandstones and quartzites, deeply weathered in places, of the Saddleworth and Balhannah Siltstones/Shales, the Belair Subgroup and the Stonyfell Quartzite. Most of the land is undulating (along the eastern side of the Sellicks Hill Range), but in the Blackfellows Creek area the slopes are steeper. Rock and stone are only significant on the steeper slopes. Saline seepages occur sporadically on lower slopes and in drainage depressions.</p> <p>BhC Undulating rises and gentle slopes with relief to 30 m and slopes of 4-10%.</p> <p>Most soils have sandy loam to loam surfaces overlying clayey subsoils grading to weathering rock at about a metre. Variations in surface texture and subsoil structure and colour are related to rock type. On lower slopes, soils are deeper over local alluvium or deep weathering profiles. On upper slopes, loamy ironstone soils with gradual increases in clay content with depth are common.</p> <p>Main soils: <u>Acidic loam over red mottled clay on rock</u> - K2c (E)</p> <p><u>Acidic sandy loam over brown clay on rock</u> - K4 (C)</p> <p><u>Acidic gradational red loam</u> - K1c (C)</p> <p><u>Sandy loam over brown clay on deeply weathered rock</u> - F1a (M) on lower slopes</p> <p><u>Sandy loam over brown clay</u> - F1b (M) in creek flats</p> <p><u>Acidic, deep sandy loam ironstone soil</u> - J2a (M) on crests</p> <p>Soils are generally moderately deep to deep with high waterholding capacities. Natural fertility is low to moderate - some soils are quite sandy, but others are heavy loams, and all are susceptible to acidification. Most of the land is well suited to more intensive development, although salinity should be monitored and erosion control measures are essential wherever soils are disturbed.</p>
BID	< 0.1	<p>Geology: Metasandstones and metasiltsstones of the Backstairs Passage, Tappanappa and Carrickalinga Head Formations.</p> <p>BID Gently rolling low hills with relief of 30-80 m and slopes of 10-18%.</p> <p>Main soils: <u>Acidic loam over red clay on rock</u> - K2b (E)</p> <p><u>Acidic sandy loam over red clay on rock</u> - K3 (E)</p> <p><u>Shallow loam on rock</u> - L1b (L) } on some steeper and rocky slopes</p> <p><u>Shallow sandy loam on rock</u> - L1a (L) }</p>
FhZ	2.7	<p>Isolated small summit surfaces, upper slopes and crests in an undulating to gently rolling landscape formed on glacial valley deposits. Underlying sediments are deeply weathered kaolinized sands and sandy clays. Slopes range from 2-12%, but where breakaway landforms occur below summit surfaces, slopes may reach 20%. There is usually minor surface ironstone, but in places ferricrete boulders are abundant.</p> <p>Main soils: <u>Ironstone soil</u> - J2 (V)</p> <p><u>Shallow ironstone soil</u> - J3 (L)</p> <p>These soils are generally deep (J2), but infertile, due to the high degree of leaching and presence of phosphate fixing ironstone. The soils are highly susceptible to acidification (surface and subsurface) and aluminium toxicity.</p>
HaA	0.1	<p>Outwash fans formed on weakly calcified clayey sediments.</p>
HaB	0.2	<p>HaA Flats with slopes of less than 1%.</p>
HaC	0.2	<p>HaB Very gentle slopes of 1-3%.</p> <p>HaC Gentle slopes of 3-6%</p> <p>Soils are loamy to sandy texture contrast types.</p> <p>Main soils: <u>Loam over poorly structured red clay</u> - D3a (E)</p> <p><u>Sand over poorly structured clay</u> - G4 (E)</p> <p><u>Sandy loam over poorly structured brown clay</u> - F2 (L)</p>



		Poor subsoil structure, restricting water movement and root growth is the main limitation. Otherwise, the soils are deep and moderately (D3a and F2) to marginally fertile (G4). Water erosion is a potential problem on long slopes in the west.
LKB LKC LKD	3.2 1.9 0.2	<p>Lower slopes transitional from rising ground to creek flats. Underlying materials are sandy clay to clay outwash sediments derived from upslope glacial valley deposits, mainly Soil Landscapes Ps* and Pt*. Slopes range from 1% to 12%.</p> <p>LKB Slopes less than 2%. LKC Slopes 2-6%. LKD Slopes 6-12%.</p> <p>The soils are highly variable, reflecting the source areas of the parent sediments. Most soils have sandy to loamy surfaces over mottled clay subsoils. Main soils: <u>Thick sand over sandy clay</u> - G3b (E) <u>Loam over brown clay</u> - F1b (C) <u>Sandy loam over poorly structured brown clay</u> - F2 (L) <u>Deep bleached siliceous sand</u> - H3b (L) <u>Wet highly leached sand</u> - I2b (L) <u>Bleached loamy sand over sandy clay loam</u> - M1 (M)</p> <p>Soils are deep but poorly drained due to tight clayey subsoils and lower slope position. Fertility is moderate to low depending on sandiness of surface soil. Most are acidic.</p>
LM A LME	0.7 0.2	<p>Peaty swamps and drainage depressions of glacial valley floors, formed on organically enriched variable alluvial deposits influenced by near surface ground waters. Slopes are less than 1%.</p> <p>LMA Flats. LME Drainage depressions.</p> <p>The soils are variable and include peats, sands over clay or coffee rock, and grey clays.</p> <p>Main soils: <u>Peat</u> - N1 (E) <u>Wet highly leached sand</u> - I2b (C) <u>Loam over brown clay</u> - F1b (L) <u>Deep clay loam</u> - M2 (L) <u>Bleached loamy sand over sandy clay loam</u> - M1 (L)</p> <p>These flats have variable soils with waterlogging the over-riding feature. Where drainage is possible, they can be productive, although the leached sands are infertile</p>
LNA LNE	1.0 0.9	<p>Narrow drainage depressions and creek flats, and broader flats of larger streams, formed on alluvial sands, sandy clays and clays derived from the erosion of glacial valley sediments. Slopes are less than 4%. Watercourses are commonly gullied.</p> <p>LNA Alluvial flats with slopes of 0-2%. LNE Narrow creek flats and watercourses with slopes of 0-5%.</p> <p>Sand to sandy loam over clay soils are most common, but there are also black clay loams, deep sands and gritty sands with gradual clay increase.</p> <p>Main soils: <u>Loam over brown clay</u> - F1b (V) <u>Deep clay loam</u> - M2 (L) <u>Thick sand over sandy clay</u> - G3b (L)</p> <p>Soils are all deep but usually imperfectly drained due to restrictive clayey subsoils. Natural fertility is variable, mostly moderate to high (the black clay loams are highly fertile). Stream bank erosion is a sporadic problem throughout. There are minor salt affected areas.</p>
LiA	1.8	<p>Low lying flats formed on alluvial clays. Slopes are less than 1%. A relatively high proportion of heavy textured soils characterizes this unit.</p> <p>Main soils: <u>Loam over brown clay</u> - F1b (E) <u>Deep clay loam</u> - M2 (E) <u>Peat</u> - N1 (L)</p> <p>These soils have moderately high to high natural fertility and are deep, their main limitations being impeded drainage and associated access difficulties.</p>
LmB	0.2	<p>Fans with slopes of 1-3% formed on mixed sandy and clayey alluvial sediments.</p> <p>Main soils: <u>Loam over brown clay</u> - F1b (E) <u>Thick sand over sandy clay</u> - G3b (E) <u>Deep bleached siliceous sand</u> - H3b (L)</p> <p>Soils are all deep but usually imperfectly drained due to restrictive clayey subsoils. Natural fertility is variable, mostly moderate to low.</p>



O-B	0.4	<p>Longitudinal dunes formed on reworked glacial sands. Main soil: <u>Bleached siliceous sand</u> - H3a (D) These soils are deep but highly infertile, and subject to water repellence and wind erosion.</p>
PPC PPE PPH PPJ	0.1 0.6 0.1 0.2	<p>Gently inclined lower slopes, drainage depressions and outwash fans with slopes of 2% to 5% formed over clayey sand and sandy clay outwash sediments derived from the erosion of hillside glacial deposits. Well defined and often badly gullied water courses are characteristic of these landscapes.</p> <p>PPC Lower slopes of 2-5%. PPE Drainage depressions with well defined but generally stable watercourses. PPH Slopes of 3-8% with eroded watercourses. PPJ Drainage depressions with well defined and eroded watercourses.</p> <p>Soil profiles include soft and hard sandy soils with clayey subsoils, and deep sandy soils. Main soils: <u>Thick sand over sandy clay</u> - G3b (E) <u>Sandy loam over poorly structured brown clay</u> - F2 (C) <u>Bleached siliceous sand</u> - H3a (L) <u>Wet highly leached sand</u> - I2b (L)</p> <p>These soils are deep but infertile and often prone to waterlogging. The texture contrast soils often have compact surfaces which are particularly susceptible to erosion.</p>
PrD	3.9	<p>Slopes and rises formed on sandy glacial sediments (partly reworked), with slopes of 2-20%. Soils are predominantly sandy.</p> <p>Main soils: <u>Bleached siliceous sand</u> - H3a (E) <u>Sand over acid clay</u> - G5 (C) <u>Imperfectly drained highly leached sand</u> - I2a (L) <u>Highly leached sand</u> - I1 (L) <u>Wet highly leached sand</u> - I2b (M) on lower slopes</p> <p>Soils are all characterized by leached highly infertile and acidic sandy surfaces. Impeded drainage is a problem in places. Water repellence can also be a problem in some seasons. Productive potential is low, although results can be achieved with intensive nutrition management.</p>
PSC PsD PsF	22.7 9.9 1.6	<p>Undulating rises to rolling low hills formed on massive sandy till, sandstone, windblown sand and associated outwash sediments. Slopes on rises are as low as 3% with relief of less than 30 metres, and on low hills slopes are up to 25%. The landscapes also include slopes of variable gradient abutting the sides of the ancient glacial valleys. The landscape has a rounded appearance broken by narrow poorly drained watercourses, swampy depressions and ferricrete (ironstone) hilltops. Larger occurrences of these latter features are mapped out as PxA/PxB/PxE, LMA/LME and FhZ respectively.</p> <p>PSC Undulating rises with slopes of 3-8%. PsD Gently rolling rises and low hills with slopes of 8-16%. PsF Rolling low hills with slopes of 16-25%.</p> <p>The soils are almost all very sandy and strongly leached. The most common soils have clayey subsoils forming in soft sandstone. Other types include deep sands and sand over coffee rock, overlying a variety of materials from sands to clays.</p> <p>Main soils: <u>Sand over acid clay</u> - G5 (E) } on slopes <u>Bleached siliceous sand</u> - H3a (L) } <u>Highly leached sand</u> - I1 (L) } <u>Sandy loam over brown clay on weathered rock</u> - F1/K4 (M) } <u>Imperfectly drained highly leached sand</u> - I2a (M) } <u>Thick sand over sandy clay</u> - G3b (L) } on lower slopes and flats <u>Wet highly leached sand</u> - I2b (M) }</p> <p>These soils are sandy, naturally infertile and highly susceptible to acidification. Water repellence can also be a problem in some seasons. Most of the soils are at least moderately deep and moderately well drained (except on lower slopes), so with adequate nutrition, productive potential is reasonable.</p>
PtB PtC PtD PtF	0.2 10.6 21.0 9.5	<p>Undulating rises and rolling low hills formed on sandstones and unconsolidated sandy clays. The undulating rises have slopes as low as 2% and relief of 20 metres. The low hills have slopes of up to 30% and relief to 80 m. The landscape is broken by well defined creek-lines and swamps, and by ferricrete (ironstone) rises. Some prominent crests within the other soil landscapes are also mapped as Pt* because of their distinctively sandier soils.</p> <p>PtB Gently undulating rises with slopes of less than 3%.</p>



		<p>PtC Undulating rises and low hills with slopes of 3-8%.</p> <p>PtD Gently rolling low hills with slopes of 8-16%.</p> <p>PtF Rolling low hills and prominent crests with slopes of 16-30%.</p> <p>The soils are predominantly sandy surfaced, with variable subsoils, including firm heavy clays, friable sandy clays, coffee rock and loose sand. The range of soils in these landscapes reflects this subsoil variability.</p> <p>Main soils: <u>Sand over brown clay</u> - G3a (C) } on slopes <u>Sandy loam over brown clay</u> - F1a (C) } <u>Sand over acid clay</u> - G5 (L) } <u>Ironstone soil</u> - J2 (L) } <u>Imperfectly drained highly leached sand</u> - I2a (L) } <u>Sandy loam over brown clay on weathered rock</u> - F1/K4 (M) } <u>Thick sand over sandy clay</u> - G3b (L) on lower slopes</p> <p>These landscapes are similar to those of Ps*, but soils tend to be less sandy and to have more clayey subsoils. This results in better fertility, but poorer drainage conditions. Soils are generally of low to moderately low fertility and prone to acidification. Imperfect drainage is only likely to be a problem in some irrigated situations. Erosion hazard is high where soil is disturbed, especially on steeper slopes.</p>
PuF	0.2	<p>Undulating rises with slopes from 4% and relief of less than 30 metres to rolling low hills with slopes of up to 30% and relief of up to 80 metres formed on sandy clays and calcareous clays, weakly lithified to shales in places. The steeper slopes are subject to landslip and tunnel erosion. Narrow watercourses, which are often gullied, dissect the landscape.</p> <p>PuF Gently rolling to rolling low hills with slopes of 12-30%.</p> <p>Most soils have strongly texture contrast profiles with sandy to loamy surfaces and clayey subsoils, which vary in structure, particle size and colour depending on the nature of the parent sediments. There are minor clay soils.</p> <p>Main soils: <u>Sand over clay</u> - G3a (E) <u>Sandy loam over acid-neutral brown clay</u> - F1/F2 (E) } all on slopes <u>Sandy loam over poorly structured brown clay</u> - F2a (L) } <u>Thick sand over acid clay</u> - G5 (L) } <u>Grey-brown cracking clay</u> - E3 (M) } <u>Thick sand over clay</u> - G3b (M) } on lower slopes and narrow alluvial flats <u>Sandy loam over brown clay</u> - F1a (M) }</p> <p>These soils are more susceptible to waterlogging than the related soils of PtD/PtF, with their heavier clay subsoils. Apart from high sheet/rill erosion potential, the steeper slopes are prone to landslip and tunnel erosion. Any activities which concentrate or increase subsoil water could activate mass movement, gully or tunnel erosion. Land use options are therefore limited on PuF. Natural fertility is low to moderate, and the soils are highly susceptible to acidification.</p>
PwD	0.2	<p>Low rounded rises with slopes less than 5%, to short steep hillslopes with slopes of up to 40% formed on boulder till. Surface stone is extensive.</p> <p>Main soil: <u>Shallow stony soil</u> - M3 (D)</p> <p>The soils are well drained, but often have restricted water holding capacities and low natural fertility. The amount of stone and uneven slopes limit many uses.</p>
PxA PxB PxE	1.5 0.2 2.8	<p>Very gently inclined lower slopes, flats, drainage depressions and swales underlain by variable, but mainly coarse grained, outwash sediments derived from the erosion of hillside Soil Landscapes Ps* and Pt*. Slopes range from 0% to 4%.</p> <p>PxA Flats with slopes of less than 1%.</p> <p>PxB Lower slopes of 1-3%.</p> <p>PxE Drainage depressions and swales with slopes of 0-4%.</p> <p>The soils are mainly sandy in the surface, with variable subsoils including coffee rock, heavy mottled clay and sandier clay materials.</p> <p>Main soils: <u>Wet highly leached sand</u> - I2b (E) <u>Thick sand over sandy clay</u> - G3b (E) <u>Bleached loamy sand over sandy clay loam</u> - M1 (E)</p> <p>Imperfect to poor drainage is the main feature of these landscapes. In addition, most soils have low natural fertility.</p>



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

(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:

Soils formed on glacial sediments

- F1a** Sandy loam over brown clay (Bleached-Mottled, Eutrophic, Brown Kurosol)
Medium thickness grey brown sandy loam to sandy clay loam with a bleached A2 horizon, overlying a yellow brown, grey and red mottled clay with coarse prismatic structure, grading to grey and yellow mottled sandy clay from 100 cm.
- G3a** Sand over brown clay (Bleached-Mottled, Eutrophic, Brown Kurosol)
Medium thickness grey brown sand to loamy sand with a bleached A2 horizon, overlying a yellow brown, grey and red mottled clay with coarse prismatic structure, grading to grey and yellow mottled sandy clay from 100 cm.
- G5** Sand over acid clay (Bleached, Mesotrophic, Brown Kurosol)
Thick grey sand to light sandy loam with a bleached A2 horizon containing variable quartz, sandstone, ironstone and coffee rock gravel, overlying a yellow, brown and red massive sandy clay loam to light clay, grading to weakly indurated yellow, grey and red sandstone.
- H3a** Bleached siliceous sand (Acidic, Arenic, Bleached-Orthic Tenosol)
Very thick white sand overlying yellow sand.
- I1** Highly leached sand (Fragic, Pipey, Aeric Podosol)
Grey sand with a very thick bleached A2 layer, over dark brown and yellow massive soft to semi-hard clayey sand (coffee rock), grading to softer yellow and brown sand to sandy clay loam from about 80 cm.
- I2a** Imperfectly drained highly leached sand (Parapanic, Humosesquic, Semiaquic Podosol)
Grey sand with a very thick bleached A2 horizon, overlying a coffee rock pan, grading to a brown and yellow massive sandy clay loam to light clay forming on soft sandstone at about 150 cm.
- M3** Shallow stony soil (moderately gravelly Regolithic, Brown-Orthic Tenosol)
Thick brown sand to loamy sand with up to 50% stones and cobbles, overlying rounded cobbles and stones of quartzite and sandstone (till) in a reddish yellow matrix of sand to sandy clay.

Soils formed on deeply weathered and lateritized glacial sediments

- J2** Ironstone soil (Bleached-Ferric, Mesotrophic, Brown Kurosol)
Thick grey sand to sandy loam with a bleached and ironstone gravelly A2 horizon, overlying an ironstone gravelly yellow brown and red sandy clay loam to clay, grading to grey, red and yellow sandy clay loam forming in highly weathered kaolinized sandstone deeper than 150 cm.
- J3** Shallow ironstone soil on ferricrete (Petroferric, Mesotrophic, Brown Kurosol)
Medium thickness brown sand to sandy loam with a pink A2 horizon containing more than 50% ironstone gravel, overlying a yellow brown ironstone gravelly sandy clay, grading to clayey sand with ironstone gravel, stones and boulders.

Soils formed on deeply weathered basement rocks

- F1/K4** Sandy loam over brown clay on weathered rock (Bleached, Mesotrophic, Brown Kurosol)
Thin sandy to loamy topsoil overlying brownish or yellowish friable clay subsoil grading to soft weathering metamorphosed sandstone (basement rock) below 100 cm.



Soils formed on outwash sediments

- F1b** Loam over brown clay (Bleached-Mottled, Hypocalcic, Brown Chromosol)
Thick loamy sand to sandy clay loam surface soil with a strongly bleached A2 horizon, sharply overlying a yellowish brown, grey and red mottled clay subsoil grading to fine grained alluvium.
- F2** Sandy loam over poorly structured brown clay (Eutrophic, Mottled-Subnatric, Brown Sodosol)
Thick grey brown hard sandy loam with a bleached A2 horizon, overlying a yellow brown, brown and red massive sandy clay loam to sandy clay with coarse columnar structure.
- M1** Bleached loamy sand over sandy clay loam (Bleached-Mottled, Mesotrophic Brown Kandosol)
Very thick grey soft loamy sand to sandy loam with a bleached A2 horizon, overlying a yellow brown and grey clayey sand, grading to a brown, grey and yellow sandy clay loam to sandy clay.
- G3b** Thick sand over sandy clay (Bleached-Mottled, Mesotrophic, Brown Chromosol)
Thick to very thick soft sand to light sandy loam with a bleached A2 layer, over a yellowish brown and grey mottled sandy clay to clay with weak to moderate coarse blocky structure, becoming sandier with depth.
- H3b** Deep bleached siliceous sand (Arenic, Bleached-Orthic Tenosol)
Very deep greyish brown massive sand, grading to white sand, overlying layers of brown, yellow and grey sand to clayey sand with variable quartz gravels.
- I2b** Wet highly leached sand (Fragic, Humic, Aquic Podosol)
Grey sand with a thick bleached A2 horizon, overlying a thin to thick layer of coffee rock, grading to pale brown sand sharply overlying a grey, brown and yellow mottled sandy clay loam to light clay.
- M2** Deep clay loam (Melanic, Calcic, Grey Dermosol)
Thick black clay loam with granular structure, overlying a dark grey to black heavy clay with strong blocky structure. The clay is yellow brown and weakly calcareous with depth.
- N1** Peat (Acidic, Hemic Organosol)
Deep black rotted organic matter or highly organic sand to loam, seasonally or permanently saturated.

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

