

WTH**Waterhouse Land System****Area:** 46 km²

Landscape: The land system name derives from the Hundred of Waterhouse, near Robe. It is a dune range comprising rises and flats flanking the western shores of the saline Lake Hawdon, and is bounded to the west by the higher Woakwine range. It is characterised by low stony rises with much calcarenite outcrop and swampy flats with shallow soils on calcreted lacustrine sediment and wet, often saline, swamps especially in the southeast in proximity to Lake Hawdon. Sandy surfaced sodic soils feature in the northeast.

Annual rainfall: 625 – 675 mm average

Geology: Calcreted aeolianite of the Pleistocene Bridgewater Formation barrier shoreline deposits on rises. Pleistocene Glanville Formation plains with clayey deposits, often calcreted.

Main soils:

- B3** (20%) Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)
- B2** (18%) Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)
- B6** (15%) Shallow loam over red-brown clay on calcrete (Petrocalcic Red Chromosol-Kandosol)

Minor soils:

- N3** (8%) Wet soil (non to moderately saline) (Sodosolic-Calcarosolic-Dermosolic Hydrosol)
- B8** (6%) Shallow bleached sand on calcrete (sandy Petrocalcic Rudosol-Tenosol)
- H3** (5%) Bleached siliceous sand (sandy Bleached Tenosol)
- N2** (4%) Saline soil (Salic-Hypersalic Hydrosol)

Summary: The predominant soils are shallow over calcrete, whether on the rises or the flats. The limitations are mostly low waterholding capacity and rockiness. Some of the better drained land on rises with deeper soils has potential for horticultural development, but the flats are saline and prone to seasonal wet conditions.

Soil Landscape Unit summary: Waterhouse Land System (WTH)

SLU	% of area	Component	Main soils	Prop#	Notes
MAB	1.4	Rise	B3RR	D	MAB Gently undulating calcreted former beach ridges with stony, very shallow red and brown loam, occasionally over red clay, on calcrete. >50% bare calcrete.
MAD	1.2	Rise	RRB3	D	MAD as above, rolling rises and low hills, bare rock is dominant. Main soils: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u> .
M-B	0.5	Stony rise	B3RR	V	M-B Gently undulating rises, as above but <50% bare calcrete. 10-20% swales with shallow sandy loam, mostly over poorly structured brown, or red clay on calcrete; 10-30% of swale areas have very shallow sandy loam on calcrete, soils or bare calcrete.
		Swale	B7B6	L	
M-C	16.8	Rise	RRB3	D	M-C Steeper, undulating rises as above. Main soils: Stony rises: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u> .



					Swales: <u>Sand over friable brown clay on calcrete - B7</u> and <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> .
MCB	0.2	Dune range	B6B3 H3	D	MCB Gently sloping dune ranges with shallow sand, mostly over red clay, on calcrete. Deep calcareous siliceous sand is also common on dunes.
MCH	4.9	Undulating plain	B2	D	Lower slopes often have shallow sand over poorly structured brown clay. MCH Gently undulating plains with shallow calcareous loam on calcrete, occasionally with thin red clayey subsoil. <10% rises with bare calcrete or thin loam on calcrete. Main soils: Dune ranges: <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> and <u>Shallow sandy loam on calcrete - B3</u> and <u>Bleached siliceous sand - H3</u> . Plains: <u>Shallow calcareous loam on calcrete - B2</u> . Rises: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u> .
		Rise	RRB3	M	
MEB	13.2	Rise	B6B3	V	Gently undulating rises with sandy loam, mostly over red clay, on calcrete; 10-30% sandy rises with deep siliceous bleached sand. Main soils: Rises: <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> and <u>Shallow sandy loam on calcrete - B3</u> . Plains: <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> and <u>Sand over friable brown clay on calcrete - B7</u> .
		Plain	B6B7	C	
MHB	6.1	Dune	H3	E	Co-dominant dunes and stony ranges, with gentle slopes. Deep bleached siliceous sand on dunes; Stony ranges have shallow sand, occasionally over thin red clay, on calcreted calcarenite, or bare calcrete. Main soils: Dunes: <u>Bleached siliceous sand - H3</u> . Stony ranges: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u> .
		Stony range	B3RR	E	
MKB	3.2	Low rise	B8RR	D	Low rises with shallow, mostly bleached, sandy loam on calcrete, or bare calcrete. Main soils: <u>Shallow sand on calcrete - B8</u> and <u>Rock or exposed calcrete - RR</u> .
MKC	5.3	Stony range	B3RR B6	D	Stony ranges with undulating slopes, with shallow sandy loam on calcrete, often with red clay subsoils, or bare calcrete. Main soils: <u>Shallow sandy loam on calcrete - B3</u> , <u>Rock or exposed calcrete - RR</u> and <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> .
MtA	5.2	Plain	B8	D	Plains with shallow bleached sand over calcrete. 10-30% bare calcrete; 10-30% shallow sandy loam over poorly structured brown or grey clay on calcrete. Main soils: <u>Shallow sand on calcrete - B8</u> .
MzE	5.0	Swampy swale	B2	D	Swampy swale with very shallow dark loam over calcrete. 10-30% bare rock. Main soils: <u>Shallow calcareous loam on calcrete - B2</u> .
MZP	8.2	Rise	B3B6	D	Gently undulating rises with shallow reddish sand, often over thin red sandy clay, on calcrete; 10-30% deep siliceous sand; 10-30% shallow bleached sand on calcrete. <10% swales with deep sand over poorly structured grey-brown clay. Main soils: Rises: <u>Shallow loam on calcrete - B3</u> and <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> . Swales: <u>Thick sand over clay - G3</u> .
		Swale	G3	M	



NIP	1.4	Plain	G3B7	V	<p>Corridor plain with deep sand over poorly structured grey-brown clay; or shallow sandy loam over grey-brown poorly structured clay on calcrete. 10-20% sandy rises with deep, moderately drained siliceous sand, often poorly drained on grey-brown clay.</p> <p>Main soils:</p> <p>Plains: Thick sand over clay - G3 and Sand over friable brown clay on calcrete - B7.</p> <p>Sandy rises: Wet highly leached sand - I2 and Thick sand over clay - G3.</p>
		Sandy rise	I2G3	L	
ViQ	12.6	Plain	B2	V	<p>Plain with shallow dark loam on limestone; 10-30% wet, moderately saline soils. 10-20% swamps with wet, often moderately saline, dark loams; 10-30% dark loam on calcrete, 10-30% calcareous grey loam grading to clay loam on marl.</p> <p>Main soils:</p> <p>Plains: Shallow calcareous loam on calcrete - B2.</p> <p>Swamps: Wet clay loam - N3 and Wet saline clay loam - N2c.</p>
		Swamp	N3N2	L	
Xuf	11.3	Swamp	N3	V	<p>Swamps with non-peaty wet soils; 20-30% stony rises with shallow often calcareous, grey clay loam, often over dark grey clay, on calcrete.</p> <p>Main soils:</p> <p>Swamps: Wet clay loam - N3.</p> <p>Stony rises: Shallow calcareous loam on calcrete - B2, Shallow loam on calcrete - B3 and Shallow dark clay loam on limestone - B5.</p>
		Stony rise	B2B3 B5	C	
Zq-	3.1	Salt flat	N2A7	D	<p>Bare salt flat with wet, highly saline calcareous dark clay loam, often over marl, occasionally calcreted marl.</p> <p>Main soils: Wet saline clay loam - N2c and Calcareous clay loam on marl - A7.</p>
Zr-	0.5	Saline flat	N2A7	D	<p>Bare salty flat with mostly wet & saline, dark calcareous clay loam on calcrete or marl; some wet soils are non-saline or marginally saline.</p> <p>Main soils: Wet saline clay loam - N2c and Calcareous clay loam on marl - A7.</p>

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

- | | |
|--|-------------------------------------|
| 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:

- A7** Calcareous clay loam on marl (Marly Calcarosol)
 Dark calcareous clay with a marly subsoil (often saline in Upper SE). Often with shells and a peaty surface.
- B2** Shallow calcareous sandy loam on calcrete (Petrocalcic Calcarosol)
 Up to 40 cm calcareous loamy sand to sandy loam with variable calcrete rubble overlying calcreted calcarenite - rises.
- B3** Shallow sandy loam on calcrete (Petrocalcic Rudosol)
 Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.
- B5** Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)
 Black clay loam to light clay over calcreted limestone at shallow depth, grading to highly calcareous clay - flats.
- B6** Shallow sandy loam over red-brown clay on calcrete (Petrocalcic, Red Kandosol)
 Medium thickness sandy loam with slight ironstone gravel overlying a weakly structured reddish brown sandy clay on calcarenite within 50 cm - rises.



- B7** Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol)
Medium thickness sand overlying brown friable sandy clay to clay on limestone or calcreted sandy clay within 50 cm - flats.
- B8** Shallow sand on calcrete (Petrocalcic, Bleached-Leptic Tenosol)
Thick bleached sand over calcreted calcarenite within 50 cm - rises.
- G3** Thick sand over clay (Hypercalcic, Brown Sodosol/ Chromosol)
Thick bleached sand with an organically darkened surface abruptly overlying a massive to coarsely structured brown to reddish yellow sandy clay to clay, calcareous with depth - rises.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)
Grey sand over a very thick bleached sand grading to yellow sand continuing below 100 cm.
- I2** 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.
- N2c** Wet saline clay loam (Dermosolic, Salic Hydrosol)
Medium thickness dark grey to black clay loam to clay grading to well-structured dark grey clay with minor carbonates and a water table within 100 cm.
- N3** Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:
N3c Wet **G3**
N3d Wet **B5**
N3e Wet **B7**
- RR** Bare rock

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

