# **MOB** Monbulla Land System

**Area:** 217.2 km<sup>2</sup>

Landscape: Corridor plains southwest of Bool Lagoon, with sandy rises and low dunes and swampy flats

**Annual rainfall:** 625 – 670 mm average

**Geology:** Pleistocene Padthaway Formation calcareous lacustrine clays on flats, with Pleistocene

Bridgewater Formation calcreted calcarenite stranded beach ridge deposits on low ranges.

Main soils: G3 (29%) Thick sand over clay (sandy Brown-Red Chromosol-Sodosol)

N3 (16%) Wet soil (non to moderately saline) (Sodosolic-Calcarosolic-Dermosolic Hydrosol)

**B7** (14%) Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol) **G4** (10%) Sand over poorly structured clay (sandy Brown-Red Sodosol-Chromosol)

Minor soils: B5 (6%) Shallow dark clay loam on limestone (Petrocalcic Black-Grey Dermosol)

**I1** (5%) Highly leached sand (Aeric Podosol)

**H3** (5%) Bleached siliceous sand (sandy Bleached Tenosol)

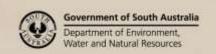
**Summary:** The G3 and G4 sand over clay soils which are widespread, occurring on sand plains and low

rises mostly, are susceptible to seasonal waterlogging, have mostly acidic sand surfaces and have relatively low, inherent fertility in the surface. Wet (N3) soils occupy 16% of the area and are indicative of the swampy nature of the land system. The other most common soils are B7 soils, or shallow sand over poorly structured clay on calcrete, which have low water holding

capacity as well as being poorly drained.

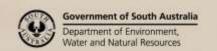
Soil Landscape Unit summary: Monubulla Land System (MOB)

SLU	% of area	Component	Main soils	Prop#	Notes
MRB	0.2	Undulating plain	B6B7G3	D	Gently undulating plains with shallow sand over red clay, or poorly structured brown clay in low parts, on calcrete; or deep sand over brown clay; 10-30% deep siliceous sandy rises.
					Main soils: <u>Shallow sandy loam over red-brown clay on calcrete</u> - <b>B6</b> , <u>Sand over friable brown clay on calcrete</u> - <b>B7</b> and <u>Thick sand over clay</u> - <b>G3</b> .
MYAA	0.2	Rise	B6	D	MYAA Plains with low dune core topography with shallow,
		Outcrop	RRB2	М	texture contrast, sandy loam over red clay on calcreted
MYB	8.0	Rise	B6	D	calcarenite; 10-30% gradational red clay loam over red clay, deep
		Outcrop	RRB2	М	or shallow over calcrete, or deep sand over brown clay. <10% rises
MYH	8.0	Sandy rise	G3H3	E	with bare calcrete outcrop or very shallow calcareous clay loam
	over calcrete; 10-30% with shallow loam over red clay on calcrete.				
		Outcrop	RRB2	М	MYB Gently sloping rises with soils as above and <10% bare
		Depression	G3	М	calcrete rises or with shallow soils as above.  MYH Gently sloping sandy rises, mostly with deep sand over brown clay, but often deep siliceous bleached acid sand; 10-30% thin sand over poorly structured brown clay. 20-30% rises with shallow texture contrast sandy loam over red clay on calcrete. <10% rises with calcrete outcrop and very shallow soils as for MYB. <10% depressions mostly with deep sand over brown clay; 10-30% thin sand over poorly structured clay, or deep acid bleached sand.



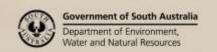


Main soils:  **Rises: Shallow sandy loam over red-brown clay on calce  **Outcrops: Rock or exposed calcrete – RR and Shallow loam on calcrete - B2.  **Sandy rises: Thick sand over clay - G3 and Bleached si sand - H3.  **Depressions and swales: Thick sand over clay - G3.	
Outcrops: Rock or exposed calcrete – RR and Shallow loam on calcrete - B2.  Sandy rises: Thick sand over clay - G3 and Bleached si sand - H3.	
loam on calcrete - <b>B2</b> . <b>Sandy rises:</b> Thick sand over clay - <b>G3</b> and Bleached si sand - <b>H3</b> .	<u>calcareous</u>
Sandy rises: Thick sand over clay - G3 and Bleached si sand - H3.	
<u>sand</u> - <b>H3</b> .	
	<u>iliceous</u>
Depressions and swales: Thick sand over clay - G3.	
NDD 0.2 Plain G3B7 V Plains with deep sandy loam over brown clay or over p	oorly
Sandy rise G3I2 C structured brown clay on calcrete. 20-30% sandy rises	with deep
sand over yellow-brown clay or deep sand with organi	С
pan/coffee rock, which impedes drainage.	
Main soils:	
Plains and depressions: Thick sand over clay - G3 and	d <u>Sand over</u>
<u>friable brown clay on calcrete</u> - <b>B7</b> .	
Sandy rises: Thick sand over clay - G3 and Wet highly	<u>leached</u>
<u>sand</u> - <b>12</b> .	
NjA 2.5 Plain B7 D Plains with shallow sandy loam over poorly structured	brown clay
Swamp M2B5 M on calcrete; 10-30% deep soil with thin sand over poor	
structured brown clay. <10% swamps with deep sandy	
over brown clay, or shallow dark clay loam over dark c	
calcrete; 10-30% wet soils or thin sand over brown clay	-
Main soils:	
Plains: Sand over friable brown clay on calcrete - B7.	
Swamps: Deep friable gradational clay loam - M2 and	Shallow
<u>dark clay loam on limestone</u> - <b>B5</b> .	
NkK 14.2 Plain B7G3 V Plains with shallow sand over poorly structured brown	clav on
Swamp N3C5 C calcrete, or deep sand over brown clay. 20-30% swamp	•
Sandy rise I1H3 M mostly wet soils and often deep clay loam grading to d	
calcareous clay. <10% sandy rises with deep bleached	
strongly water repellent sand; 10-30% less well drained	
organic pans; or shallow bleached sand, often over po	
structured brown clay on calcrete.	,
Main soils:	
Plains: Sand over friable brown clay on calcrete - B7 a	and Thick
sand over clay - <b>G3</b> .	a <u></u>
Swamps: Wet clay loam - N3; Gradational dark clay lo	am – <b>C5</b> .
Sandy rises: Highly leached sand - I1 and Bleached sil	
- H3.	
NMF 3.2 Plain B7B5 V <b>NMF</b> Plains with mostly shallow sandy loam over poo	rly
Swamp N3B5 L structured brown clay on calcrete, but often shallow da	,
NMK 8.3 Plain B7 E loam over dark clay on calcrete; 10-30% wet soils in de	
Swamp M2B5 E or deep bleached sand on rises, or shallow bleached sa	
Sand rise G3 M calcrete. 10-20% swamps with shallow dark clay loam of	
clay on calcrete, mostly wet.	
NMK Plains with mostly shallow sandy loam over poo	orly
structured brown clay on calcrete; 10-30% thin sand or	,
poorly structured brown clay. Co-dominant swamps w	
clay loam over dark clay; deep or shallow over calcrete	; 10-30%
wet soils or shallow sand over poorly structured brown	n clay. <10%
sand rises with deep sand, mostly over brown clay; 10-	-30% deep
bleached sand, or shallow sand over poorly structured	brown clay.
Main soils:	and Shallow
	iiia <u>si</u> ianow i
Plains: Sand over friable brown clay on calcrete - B7 a	ina <u>Shanow</u>
Plains: Sand over friable brown clay on calcrete - B7 a dark clay loam on limestone - B5.	



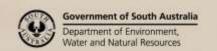


NmA	3.5	Plain	G4	D	NmA Plains with shallow sandy loam over poorly structured
. 14444 4	ر.ی	Swamp	B5G4	М	brown clay; 10-30% shallow dark clay loam over dark clay on
NmG	0.1	Depression	G4N3	D	calcrete. <10% swamps with shallow dark clay loam over dark clay on calcrete or shallow sand over poorly structured brown clay; 10-
					30% wet soils.
					NmG Depressions with often wet, shallow sand over poorly
					structured brown clay; 10-30% shallow dark clay loam over dark
					clay on calcrete.
					Main soils:
					Plains: Sand over yellow and brown clay - G4.
					Swamps and depressions: Shallow dark clay loam on limestone -
					<b>B5</b> , <u>Sand over yellow and brown clay</u> - <b>G4</b> and <u>Wet clay loam</u> - <b>N3</b> .
NnA	1.3	Plain	B5	D	NnA Plains with shallow dark clay loam over dark clay on calcrete;
- 1222 2	1.5	Swamp	B5G4	М	10-30% shallow or deep, sand over poorly structured brown clay.
NnG	1.8	Depression	B7B5	D	<10% swamps with similar soils, 10-30% wet.
1,110		2 00.000.0	2723		NnG Depressions with shallow sand over poorly structured brown
					clay on calcrete, or dark clay loam over dark clay on calcrete; 10-
					30% thin sandy loam on calcreted calcarenite.
					Material
					Main soils:  Plains: Shallow dark clay loam on limestone - B5.
					Swamps: Shallow dark clay loam on limestone - B5 and Sand over
					yellow and brown clay - <b>G4</b> .
					<b>Depressions:</b> Sand over friable brown clay on calcrete - <b>B7</b> and
					<u>Shallow dark clay loam on limestone</u> - <b>B5</b> .
NRD	0.02	Plain	G3G5	D	Plains with deep, acid sand over often acid, brown clay. 10-20%
		Sandy rise	I2H3G3	М	sandy rises with deep, acid, bleached, siliceous sand, often over
		-			brown clay at depth.
					Main soils:  Plains: Thick sand over clay - G3 and Sand over acidic clay - G5.
					Sandy rises: Wet highly leached sand - 12, Bleached siliceous sand
					- H3 and Thick sand over clay - G3.
NSD	4.0	Plain	G3M4	D	NSD Plains with deep sand over brown clay, or clay loam over
		Sandy rise	I2H3G3	М	poorly structured dark brown clay soils. <10% sandy rises with
		Swamp	G3N3B5	М	deep bleached siliceous sand, often over brown clay on lower
NSF	0.2	Plain	G3G4	V	slopes. < 10% swamps with often wet, deep sand over brown clay
		Swamp	G3N3B5	С	or shallow dark clay loam on clay on calcrete.
NSG	8.7	Drainage	N3G3	D	NSF Plains with deep soils with thick or thin sand over often
		depression			poorly structured brown clay. 20-30% swamps with often wet,
NSK	1.0	Plain	G3G4	E	deep sand over brown clay, or shallow dark clay loam over dark clay on calcrete.
		Swamp	G3N3B5		NSG Drainage depression with deep, mostly wet, sandy loam
NICC		Sand rise	G3	M	over brown clay.
NSS	5.1	Plain	G3G4	E	NSK Plains with soils as for NSF; but with co-dominant swamps
		Swamp	G3N3B5		as for NSF; <10% sandy rises with deep sand over brown clay.
		Sand rise	G3	L	NSS Plains with soils as for NSF; 20-30% swamps as for NSF; 10-
					20% sandy rises with deep sand over brown clay.
					Main coile:
					Main soils:  Plains: Thick sand over clay - G3 and Deep hard gradational
					sandy loam - M4.
					Sandy rises: Wet highly leached sand - I2, Bleached siliceous sand
					- H3 and Thick sand over clay - G3.
					Swamps: Thick sand over clay - G3, Wet clay loam - N3 and
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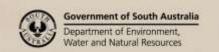


NTD	0.0	Distri			NUMBER OF STREET
NTD	0.8	Plain	G3	D	NTD Plains with mostly deep acid sands over acid yellow-brown
		Sandy rise	I1H3	М	clay. <10% sandy rises with deep, water-repellent, bleached acid
		Swamp	G3N3B5	М	sand. <10% swamps with often wet, deep sand over brown clay or
NTG	0.1	Depression	G3N3	D	shallow dark clay loam on clay on calcrete.
NTP	6.2	Plain	G3	V	NTG Drainage depressions with deep sand over brown clay, often
		Sandy rise	I1H3	L	wet.
		Swamp	G3N3B5	М	NTP Plains with soils as for NTD; 10-20% sandy rises; <10%
NTS	0.7	Plain	G3	Ε	swamps.
		Sandy rise	I1H3	E	NTS Plains with soils as for NTD; co-dominant sandy rises; 20-
		Swamp	N3	С	30% swamps.
		'			Main soils:
					<b>Plains:</b> Thick sand over clay - <b>G3</b> .
					Sandy rises: <u>Highly leached sand</u> - <b>I1</b> and <u>Bleached siliceous sand</u> - <b>H3</b> .
					Drainage depressions: Thick sand over clay - G3 and Wet clay
> T					<u>loam</u> - <b>N3</b> .
NUA	0.4	Plain	G3F1	D	NUA Plains with deep usually acid, sand over brown clay; or
NUD	5.2	Plain	G3F1	V	sandy loam over dark brown clay; 10-30% shallow sandy loam
		Sand rise	G3	М	over calcreted calcarenite.
		Swamp	G3N3B5	М	<b>NUD</b> Plains. <10% sandy rises with deep sand over brown clay.
NUP	0.5	Plain	G3G4	V	<10% swamps with often wet, deep sand over brown clay or
		Sand rise	G3	C	shallow dark clay loam on clay on calcrete.
		Swamp	G3N3B5	М	<b>NUP</b> Plains with thick or thin sand over poorly structured brown
					clay. 20-30% sandy rises; <10% swamps.
					Main soils:
					Plains: Thick sand over clay - G3, Sand over yellow and brown
					<u>clay</u> - <b>G4</b> and <u>Loam over brown or dark clay</u> - <b>F1</b> .
					Sandy rises: Thick sand over clay - G3.
					Swamps: Thick sand over clay - G3, Wet clay loam - N3 and
					<u>Shallow dark clay loam on limestone</u> - <b>B5</b> .
NvF	0.1	Plain	G3G2G5	V	Plains with thin sand, or occasionally loam, over poorly structured
		Swamp	N3M2	L	brown clay. 10-20% swamps with often wet, dark grey clay loam
			M4		over often poorly structured dark brown clay.
					Main soils:
					Plains: Thick sand over clay - G3, Bleached sand over sandy clay
					loam - <b>G2</b> and <u>Sand over acidic clay</u> - <b>G5</b> .
					Swamps: Wet clay loam - N3, Deep friable gradational clay loam
					- M2 and Deep hard gradational sandy loam - M4.
NZD	0.4	Plain	G4	V	NZD Plains with acid sand over poorly structured, occasionally
1,20	0.7	Sandy rise	G5I2	M	acid, brown clay. <10% sandy rises with deep acid sand, mostly
		•	N3	M	over acid brown clay. <10% sandy rises with deep acid sand, mostly
NZP	1.2	Swamp Plain	G3	V	over clay.
NZF	1.2				<b>NZP</b> Plains with deep sand over brown clay; 10-30% thin sand
		Sandy rise	G5I2	L	over brown clay. 10-20% sandy rises with soils as for NZD. <10%
NIZO		Swamp	M2B5	M	swamps with sandy clay loam over dark clay, deep or shallow on
NZS	4.1	Plain	G4	V	calcrete; 10-30% wet soils, or shallow sand over poorly structured
		Sandy rise	G5I2	С	brown clay.
		Swamp	N3	С	
					<b>NZS</b> Plains with thin sand over poorly structured brown clay. 20-
					30% sandy rises with deep, acidic, bleached sand over acid brown
					clay, or with organic pans in subsoils. 20-30% swamps with wet,
					dark organic loam over dark clay.
					Main soils:
					Plains: Sand over yellow and brown clay - G4 or Thick sand over
					<u>clay</u> - <b>G3</b> .
					Sandy rises: Sand over acidic clay - G5 and Wet highly leached
					<u>sand</u> - <b>I2</b> .
					Swamps: Wet clay loam - N3 or Deep friable gradational clay
					<u>loam</u> - <b>M2</b> and <u>Shallow dark clay loam on limestone</u> - <b>B5</b> .





OFB	1.4	Dune	I1H3	D	OFB High dunes with deep, water repellent acid, bleached
OLD	1.4		B3B6	М	siliceous sand. <10% stony ranges with shallow sandy loam, often
		Stony	D3D0	IVI	over red clay, on calcreted calcarenite; 10-30% on poorly
OFC	0.6	range	I1	D	structured clay in swales and lower slopes.
	0.6	Dune			OFC Dunes with deep, bleached, acid, water repellent, siliceous
OFD	3.9	Low dune	I1	D	sand.
					OFD Low dunes as above.
					OFD LOW duries as above.
					M. T. T.
					Main soils:
					Dunes: Highly leached sand - I1; Bleached siliceous sand - H3.
					Stony ranges: Shallow sandy loam on calcrete - B3 and Shallow
OHG		_		_	sandy loam over red-brown clay on calcrete - <b>B6</b> .
OHC	1.5	Dune	I1H3	D	Dunes with deep, water repellent acid, bleached siliceous sand.
		Stony rise	В3	М	<10% stony rises with shallow sandy loam, occasionally over red
					clay, on calcreted calcarenite, which outcrops occasionally.
					Main soils:
					Dunes: Highly leached sand - I1; Bleached siliceous sand - H3.
					Stony rises: Shallow sandy loam on calcrete - B3.
OPG	2.4	Low dune	G2G3	V	<b>OPG</b> Low dunes with deep bleached sand over brown clay. 20-
		Swale	B7G3	С	30% swales with shallow sand over brown clay on calcrete, or
OPK	0.4	Sand	G3	D	deep sand over brown clay; 10-30% deep bleached sand.
		spread			<b>OPK</b> Sand spreads with deep sand over brown clay; <10% sandy
		Sand rise	G3H3	М	rises with deep sand over brown clay, or organic pans.
					Main soils:
					Low dunes and sandspreads: Bleached sand over sandy clay
					<u>loam</u> - <b>G2</b> and <u>Thick sand over clay</u> - <b>G3</b> .
					Swales: Sand over friable brown clay on calcrete - B7 and Thick
					sand over clay - G3.
					Sandy rise: Thick sand over clay - G3 and Bleached siliceous sand
					- H3.
00-				D	OOD Low dynas with door blooded acidic water repollent
OQD	0.2	Sand dune	H3	D	OQD Low dunes with deep, bleached, acidic, water repellent
OQD OQF	0.2 0.2	Sand dune Sand dune	H3 H3	V	sand; 10-30% deep sand over brown clay especially on lower
					sand; 10-30% deep sand over brown clay especially on lower slopes.
		Sand dune	H3	V	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep
OQF	0.2	Sand dune Sand rise	H3 G3H3	V C	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.
OQF	0.2	Sand dune Sand rise Sand dune	H3 G3H3 H3	V C V	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.
OQF OQG	0.2	Sand dune Sand rise Sand dune Sand rise	H3 G3H3 H3 G3H3	V C V C	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water
OQF OQG OQJ	0.2	Sand dune Sand rise Sand dune Sand rise Low dune	H3 G3H3 H3 G3H3 H3I1	V C V C	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower
OQF OQG	0.2	Sand dune Sand rise Sand dune Sand rise Low dune Plain	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3	V C V C E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or
OQF OQG OQJ	0.2	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand	H3 G3H3 H3 G3H3 H3I1 G3H3I2	V C V C E E V	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3	V C V C E E C	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also
OQF OQG OQJ	0.2	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3 H3	V C V C E E V C M E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3 H3	V C V C E E V C M E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet depressions or swales with thick, or occasionally thin, sand over
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet
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OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet depressions or swales with thick, or occasionally thin, sand over brown clay.  Main soils:  Dunes: Bleached siliceous sand - H3.
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet depressions or swales with thick, or occasionally thin, sand over brown clay.  Main soils:  Dunes: Bleached siliceous sand - H3.  Sandy rises: Thick sand over clay - G3 and Bleached siliceous
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet depressions or swales with thick, or occasionally thin, sand over brown clay.  Main soils:  Dunes: Bleached siliceous sand - H3.  Sandy rises: Thick sand over clay - G3 and Bleached siliceous sand - H3.
OQF OQG OQJ OQq	0.2 0.3 0.8 0.3	Sand dune Sand rise Sand dune Sand rise Low dune Plain Sand dune Sand Depression Sand dune Sand rise	H3 G3H3 H3 G3H3 H3I1 G3H3I2 H3 G3H3 G3H3 G3 H3 G3H3	V C V C E E V C M E E E	sand; 10-30% deep sand over brown clay especially on lower slopes.  OQF Dunes with soils as above; 20-30% low sand rises with deep sand over brown clay as well as deep bleached sand.  OQG Low dunes and rises with soils as for OQF.  OQJ Low dunes with deep bleached acidic, strongly water repellent sand; 10-30% deep sand over brown clay on lower slopes. Co-dominant plains with deep sand over brown clay or deep bleached siliceous sand.  OQq Low dunes and sandy rises with soils as for OQG; but also <10% wet depressions with thick, or occasionally thin, sand over brown clay.  OQt Low dunes and plains as for OQJ, but also 10-20% wet depressions or swales with thick, or occasionally thin, sand over brown clay.  Main soils:  Dunes: Bleached siliceous sand - H3.  Sandy rises: Thick sand over clay - G3 and Bleached siliceous sand - H3.  Plains: Thick sand over clay - G3, Bleached siliceous sand - H3





Xq-	2.1	Swamp	N3	D	Swamps with wet clay loam over dark clay; 10-30% water filled.
1		- · · · · · · · · · · · · · · · · · · ·			Main soils:
					Swamps: Wet clay loam - N3.
Xu-	0.04	Swamp	N3WW	D	Swamps with wet clay loam over dark clay, often water filled.
					Main soils:
					Swamps: Wet clay loam - N3.
XuC	2.1	Swamp	N3	D	XuC Swamps with mostly non-peaty wet soils, but peats occur in
Xud	4.0	Swamp	N3G3	V	up to 30% of areas.
		Sandy rise	G3I2	L	<b>Xud</b> Non-peaty clay loamy swamps with 20-30% sandy rises with
Xue	0.3	Swamp	N3	V	deep sand over brown clay soils.
		Rise	M2M4	С	<b>Xue</b> Swamps with wet, dark clay loam over dark clay, 10-30%
Xuf	1.2	Swamp	N3	V	water filled. 20-30% rises and hummocks, with deep dark clay
		Stony rise	B2B3B5	С	loam over, often poorly structured dark clay; occasionally shallow
		,			on calcrete.
					<b>Xuf</b> Swamps as for XuC above, occasionally water filled, with
					stony rises and/or very shallow over calcrete.
					Main soils:
					Swamps: Wet clay loam - N3 and Thick sand over clay - G3.
					Sandy rises: Thick sand over clay - G3 and Wet highly leached
					sand - I2.
					Stony rises: Shallow calcareous loam on calcrete - B2, Shallow
					sandy loam on calcrete - B3 and Shallow dark clay loam on
					limestone - <b>B5</b> .
					Clay-loamy rises: Deep friable gradational clay loam - M2 and
					Deep hard gradational sandy loam - M4.
Xw-	0.7	Swamp	N3WW	D	Xw- Swamps with wet clay loam over dark clay, often water filled.
Xwe	0.3	Swamp	N3WW	D	<b>Xwe</b> Swamps with wet clay loam over dark clay, often water filled.
		Lunette	B6B7	М	<10% lunettes with shallow texture contrast sandy loam over red
					clay or poorly structured brown clay, on calcreted calcarenite.
					Main soils:
					Swamps: Wet clay loam - N3.
					Lunettes: Shallow sandy loam over red-brown clay on calcrete -
					<b>B6</b> and Sand over friable brown clay on calcrete - <b>B7</b> .

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

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:**

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)

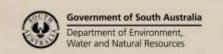
Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.

**B5** <u>Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)</u>

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.

# C5 Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol)

Dark clay loam over abundant 'soft lime'. > 10% carbonate is the cut off between this and M2 soils.

### **F1** Loam over brown or dark clay (Brown-Dark Chromosol-Sodosol)

Topsoil >30 cm over a poorly structured subsoil, or else, subsoil structure is good. Loamy to clay loamy texture contrast soil with brown clayey subsoil. Loamy, reasonable depth A, and OK structured clay subsoil.

#### **G2** Bleached sand over sandy clay loam (sandy Brown-Red Chromosol)

Sandy texture contrast soil with a bleached A2 and a friable brown-red sandy clay loam to sandy loam subsoil.

#### 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.

#### **G4** Sand over poorly structured clay (Sandy Brown-Red Sodosol-Chromosol)

Topsoil <30 cm over a poorly structured subsoil. Thin sandy texture contrast soil with a sodic /dispersive /poorly structured brown or red clayey subsoil. Can have some ironstone.

## **G5** Sand over acidic clay (Sandy Brown Kurosol)

Sandy texture contrast soil with a friable brown strongly acidic clayey to clay loamy subsoil. Very acidic soil; incipient Bh horizons; moderate depth topsoils. Some with ironstone.

## 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.

## I1 <u>Highly leached sand (Fragic, Pipey, Aeric Podosol)</u>

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.

## **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.

## M2 Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)

Deep well structured red clay loamy soil.

#### M4 Deep hard gradational sandy loam (Hard Brown-Dark Kandosol- Dermosol)

Deep dark brown loamy to clay loamy soil grading to clay at depth. Hardsetting surface often with prismatic structures in the subsoil.

#### 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

**WW** Water

Further information: DEWNR Soil and Land Program

