

# BAE Braemar Land System

- Area:** 101.2 km<sup>2</sup>
- Landscape:** Pediments and plains with isolated, approximately north-south trending basement rock ridges.
- Annual rainfall:** 205 – 235 mm average
- Geology:** Hard rock rises in northern part are formed on Precambrian rocks of the Adelaide Geosyncline, including Ulupa Siltstone Formation, Ketchowla Siltstone Formation, Pepuerta Tillite and igneous granitic and rhyolitic rocks. Basic dolerite dykes also occur. Minor occurrences of other Adelaide Geosyncline rocks also occur. Fine to medium grained Pleistocene and Holocene alluvial and colluvial sediments extend from the rises to form broad plains to the south and east.
- Soils:** Most soils are deep over outwash sediments. Calcareous gradational soils with sandy clay loam to sandy loam surfaces predominate, but gradational and texture contrast soils with non calcareous surfaces are also common. Shallow stony soils occur on rising ground over basement rock.
- Main soils (on outwash sediments)
- A3** Deep moderately calcareous sandy loam to clay loam
- A4a** Deep (rubbly) calcareous sandy loam to loam
- D4** Sandy clay loam to sandy loam over pedaric red clay
- C1** Gradational sandy loam
- Minor soils
- On outwash or wind re-worked sediments*
- A4b** Deep ironstone gravelly calcareous sandy loam
- A6** Gradational calcareous clay loam
- A8** Gypseous calcareous loam
- C3** Gradational sandy clay loam
- M4** Hard gradational sandy loam to sandy clay loam
- On rock*
- A2** Shallow calcareous loam
- C2** Gradational loam on rock
- D1** Loam over clay on rock
- L1** Shallow stony loam
- RR** Rock outcrop
- Summary:** Pediments and plains with hard rock rises on siltstones and igneous rocks. Both calcareous soils and red soils occur on the pediments, whilst red soils dominate on the plains. Shallow stony soils occur on rises, which are isolated, approximately north-south trending ridges.



**Soil Landscape Unit summary:** 21 Soil Landscape Units (SLUs) mapped in the Braemar Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
A-d	1.0	Ridges	RR	D	Steep ridges of mostly dolerite rock. Relief is less than 90m, slopes are 30-60%. Scree slopes occur. Main soils are <u>shallow stony loam - L1</u> and <u>shallow calcareous loam - A2</u> , with <u>rock outcrop - RR</u> .
AEA	3.2	Rises	A2L1	D	Non-arable rocky rises and ridges formed on mostly fine-grained rocks. <b>AEA</b> Gently sloping rises. Relief is less than 30m, slopes are 1-3%. <b>AEB</b> Rolling rises. Relief is 9-30m, slopes are 10-30%. Main soils: <u>shallow calcareous loam - A2</u> and <u>shallow stony loam - L1</u> , with <u>rock outcrop - RR</u> .
AEB	1.5	Ridges	L1	D	
EHG	2.0	Rises	A4A2	V	Rises and fans on calcareous siltstones and limestones, mainly of the Umberatana and Wilpena Groups. Fans are formed on outwash from these rocks. <b>EHG</b> Gently undulating rises (1-3% slope), with 20-30% moderately gullied fans. <b>EHV</b> Gently undulating rises (1-3% slope), with 10-50% scalding. 20-30% fans, more than 50% scalded. Main soils: Rises: <u>deep (rubbly) calcareous loam - A4a</u> , <u>shallow calcareous loam - A2</u> and <u>gradational loam on rock - C2</u> , with <u>loam over clay on rock - D1</u> and <u>rock outcrop - RR</u> . Fans: <u>deep moderately calcareous sandy loam - A3</u> and <u>hard gradational sandy loam - M4</u> , with <u>sandy loam over pedaric red clay - D4</u> .
		Fans	A3M4	C	
EHV	5.8	Rises	A2C2	V	
		Fans	A3M4	C	
EOB	3.5	Rises	A2A4	V	
		Fans	A3A4	C	
FcB	0.7	Rises	A4	D	Gently sloping rises formed on weathered siltstones. Most soils have ironstone gravelly layers. Slopes are 1-3%, relief is less than 30m. Main soil: <u>deep ironstone gravelly calcareous sandy loam - A4b</u> .
HKC	0.5	Rises	A4	D	Undulating rises formed on deep unconsolidated clayey sediments or highly weathered rock. Slopes are 3-10%, relief is less than 30m. Main soil: <u>deep ironstone gravelly calcareous sandy loam - A4b</u> .
JLB	0.2	Fans	D4C3	D	Fans formed on medium to fine grained outwash. <b>JLB</b> Gently sloping pediments with minor scalding. Slopes 1-3%. <b>JLG</b> Gently sloping fans. Slopes 1-3%. 10-20% gullied. <b>JLv</b> Gently sloping fans. Slopes 1-3%. 10-20% gullied and more than 50% scalded.
JLG	1.0	Fans	D4A3	D	
JLv	3.6	Fans	D4A3	D	Main soils: <u>sandy clay loam over pedaric red clay - D4</u> and <u>deep moderately calcareous sandy loam - A3</u> , with <u>gradational sandy clay loam - C3</u> , <u>hard gradational sandy loam - M4</u> and <u>gradational calcareous clay loam - A6</u> .



JOB	1.6	Fans	D4A4	D	Gently undulating fans formed on outwash with sandy loam to clay loam soils, often ironstone gravelly. Slopes are 1-3%. Main soils: <u>sandy loam over pedaric red clay - D4</u> and <u>deep ironstone gravelly calcareous sandy loam - A4b</u> , with <u>deep moderately calcareous sandy loam - A3</u> and <u>gradational sandy loam - C1</u> .
JPp	1.8	Fans	D4	D	<p>Fans formed on outwash sediments derived from basement rocks.</p> <p><b>JPp</b> Very gently sloping fans (0-1% slopes). More than 50% scalded.</p> <p><b>JPq</b> Gently sloping fans (1-3% slopes). More than 50% scalded.</p> <p><b>JPV</b> Gently sloping pediments (1-3% slopes), 5-10% scalded.</p> <p><b>JPy</b> Drainage depressions. 10-20% gullied and more than 50% scalded.</p> <p>Main soils: <u>sandy clay loam over pedaric red clay - D4</u>, with <u>deep moderately calcareous sandy loam - A3</u>, <u>deep (rubby) calcareous loam - A4a</u> and <u>hard gradational sandy clay loam - M4</u>.</p>
JPq	0.9	Flats	D4	D	
JPV	1.0	Fans	D4	D	
JPy	7.0	Drainage depressions	D4	D	
JZG	0.9	Fans	D4A3	V	<p>Complex of gently sloping fans on outwash sediments, and 10-20% rocky rises. Slopes are 1-3%. Fans are 10-20% gullied</p> <p>Main soils:</p> <p><i>Fans:</i> <u>loam over pedaric red clay - D4</u> and <u>deep moderately calcareous sandy loam - A3</u> with <u>hard gradational sandy clay loam - M4</u> and <u>gradational calcareous clay loam - A6</u>.</p> <p><i>Rises:</i> <u>shallow calcareous loam - A2</u> and <u>deep (rubby) calcareous sandy loam - A4a</u>.</p>
		Rises	A2A4	L	
KFU	19.4	Flats	A4A3	E	<p>Pediments and drainage depressions formed on outwash sediments.</p> <p><b>KFU</b> Plains, 10-50% scalded. Drainage depressions more than 50% scalded.</p>
		Drainage depressions	A3D4	E	
KfV	17.0	Fans	A4A3	V	<p><b>KfV</b> Gently sloping fans, 1-3% slope, minor scalding. Drainage depressions 10-50% scalded.</p> <p><b>KfI</b> Gently sloping pediments, 1-3% slope. Drainage depressions 10-20% gullied and 10-50% scalded.</p> <p>Main soils:</p> <p><i>Fans:</i> <u>deep (rubby) calcareous sandy loam - A4a</u> and <u>deep moderately calcareous sandy clay loam - A3</u>, with <u>gradational sandy loam - C1</u> and <u>sandy clay loam over pedaric red clay - D4</u>.</p> <p><i>Drainage depressions:</i> <u>deep moderately calcareous sandy clay loam - A3</u> and <u>sandy clay loam over pedaric red clay - D4</u>, with <u>deep (rubby) calcareous sandy loam - A4a</u>, <u>gradational sandy loam - C1</u> and <u>gradational calcareous clay loam - A6</u>.</p>
		Drainage depressions	A3D4	C	
KfI	26.7	Fans	A4A3	V	<p>Main soils:</p> <p><i>Fans:</i> <u>deep (rubby) calcareous sandy loam - A4a</u> and <u>deep moderately calcareous sandy clay loam - A3</u>, with <u>gradational sandy loam - C1</u> and <u>sandy clay loam over pedaric red clay - D4</u>.</p> <p><i>Drainage depressions:</i> <u>deep moderately calcareous sandy clay loam - A3</u> and <u>sandy clay loam over pedaric red clay - D4</u>, with <u>deep (rubby) calcareous sandy loam - A4a</u>, <u>gradational sandy loam - C1</u> and <u>gradational calcareous clay loam - A6</u>.</p>
		Drainage depressions	A3D4	L	
SAB	0.7	Lunettes	A4A8	D	<p>Gently undulating lunettes with highly calcareous and gypseous soils.</p> <p>Main soils: <u>deep calcareous sandy loam - A4a</u> and <u>gypseous calcareous loam - A8</u>.</p>

# 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:**

- A2** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)  
Calcareous stony loam grading to soft or rubbly carbonate over weathering dolomite or calc-siltstone within 50 cm.
- A3** Deep moderately calcareous sandy loam to clay loam (Regolithic, Calcic Calcarosol)  
Calcareous sandy loam to clay loam grading to a loamy to clayey subsoil without a significant carbonate accumulation in the subsoil, grading to medium to fine grained alluvium.
- A4a** Deep (rubbly) calcareous sandy loam to loam (Regolithic, Hypercalcic / Lithocalcic Calcarosol)  
Calcareous loam to sandy loam grading to a very highly calcareous sandy clay loam to light clay with variable rubble, continuing below 120 cm.
- A4b** Deep ironstone gravelly calcareous sandy loam (Regolithic, Hypercalcic / Lithocalcic Calcarosol)  
Calcareous sandy loam with variable ironstone gravel, grading to a very highly calcareous sandy clay loam to light clay with variable rubble, continuing below 120 cm.
- A6** Gradational calcareous clay loam (Pedal, Hypercalcic / Supracalcic Calcarosol)  
Calcareous clay loam grading to a well structured very highly calcareous (sometimes rubbly) clay, over a red clayey substrate within 120 cm.
- A8** Gypseous calcareous loam (Gypsic Calcarosol)  
Calcareous loam grading to a highly calcareous clay loam to light clay over highly gypseous light clay at between 50 and 100 cm.
- C1** Gradational sandy loam (Hypercalcic, Red Kandosol)  
Friable sandy to loamy topsoil grading to massive red-brown alkaline loamy to clay loamy subsoil, highly calcareous with depth, over alluvium.
- C2** Gradational loam on rock (Calcic / Hypercalcic Red Dermosol)  
Loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to weathering rock within 100 cm.
- C3** Gradational sandy clay loam (Calcic / Hypercalcic Red Dermosol)  
Loam to clay loam grading to a friable red clay with abundant soft Class I carbonate within 50 cm, overlying alluvium within 100 cm.
- D1** Loam over clay on rock (Hypercalcic / Calcic, Red Chromosol)  
Medium thickness hard gravelly loam over a friable and finely structured red clay, calcareous with depth, grading to weathering basement rock within 100 cm.
- D4** Sandy clay loam to sandy loam over red friable clay (Calcic, Pedaric, Red Sodosol)  
Thin to medium thickness sandy clay loam to sandy loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol)  
Shallow stony loam, often calcareous with depth, overlying weathering fine grained rock shallower than 50 cm.
- M4** Hard gradational sandy loam to sandy clay loam (Calcic, Brown / Red Dermosol / Kandosol)  
Hard setting sandy loam to sandy clay loam grading to a poorly structured to massive hard red or brown sandy clay to clay, weakly to moderately calcareous with depth, over alluvial sediments.
- RR** Rock outcrop.

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

