HOO Hookina Land System

Plains, outwash fans and pediments in the Cradock - Wilson area, but extending northwards into the pastoral country.

Area: 61.0 km^2

Geology: Fine grained alluvium derived from adjacent hills, with sporadic outcrops of fine grained basement rocks.

Topography: Flat to gently inclined plains, fans and pediments with drainage depressions and creek flats. Sporadic rocky rises protrude through the alluvium.

Annual rainfall: 235 – 300 mm average

Main soils: Soils have predominantly loamy to clayey surface textures and are deep over alluvial sediments.

A5 Rubbly calcareous loam on clay
A6 Gradational calcareous clay loam
D2 Clay loam over red clay
D4 Clay loam over pedaric red clay
E2 Red cracking clay

Minor soils:

Formed on alluvium
A3 Deep moderately calcareous loam
C1 Gradational sandy loam
C3 Gradational clay loam
D3 Loam over poorly structured red clay
M1 Deep alluvial sandy loam
M2 Deep friable gradational clay
M3 Stony alluvial soil
Formed on weathering basement rock
A2 Shallow calcareous loam
B2 Shallow calcareous loam on calcrete
C2 Gradational loam on rock
D1 Loam over clay on rock
D7 Loam over poorly structured clay on rock
L1 Shallow stony loam
RR Rock outcrop

Summary: The Hookina Land System is flat to gently undulating with mostly deep medium to fine textured soils. These are inherently fertile, although saline in places. Eroded water courses and scalds dating back to the early days of farming are still evident, and affect productivity and accessibility. However, low and unreliable rainfall is the main limitation to land use.

Soil Landscape Unit summary: 22 Soil Landscape Units (SLUs) mapped in the Hookina Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
EHU	1.7	Plains	A2	V	**EHU** Plains with rocky rises. Scalding affects up to 50% of the land, more pronounced on the plains. ***Plains:*** Flat outwash plains (less than 1% slope) with moderately shallow, pulverulent, easily erodible, calcareous soils. More than 50% of the plains are scalded. Main soils: shallow calcareous loam - **A2**, with shallow calcareous loam on calcrete - **B2** and shallow stony loam - **L1**. ***Rocky rises:*** Undulating rocky rises with slopes of 1-3% and relief of less than 9m. 5-50% of the rises are scalded. Main soils: rock outcrop- **RR** and shallow stony loam - **L1**.
		Rocky outcrops	RR	L	
H5m	1.4	Undulating rises	D4D7	D	Undulating rises formed on deep unconsolidated sediments or highly weathered rock. Slopes are 3-10%, relief is less than 30m. Gullying affects up to 20% of land and scalding affects up to 50%. Main soils: clay loam over pedaric red clay - **D4** and loam over poorly structured clay on rock -**D7** with red cracking clay - **E2**.
JEk	0.7	Plain	D4	D	Plains and pediments formed in alluvium. Slopes are less than 1%. Gullying affects up to 20% of land and up to 50% is scalded. Main soil: clay loam over pedaric red clay - **D4**.
JMl	1.7	Pediments	D2	V	Pediments formed on a complex of weathered rock and alluvial sediments with more than 20% surface and topsoil quartz gravel. **JMl** Gently sloping pediments with basement rises formed on Tapley Hill Formation calc-siltstones. ***Pediments:*** Pediment slopes are 1-3%. Gullying affects up to 20% of land, scalding affects up to 50%. Main soils: clay loam over red clay - **D2** with clay loam over pedaric red clay - **D4**. ***Rises:*** Slopes are 1-3%, relief is 9-30m Main soils: shallow stony loam **- L1** and loam over clay on rock - **D1**, with loam over poorly structured clay on rock -**D7**. **JMm** Undulating pediments with slopes of 3-10%. Gullying affects 5-20% of land and 5-50% is scalded. Main soils: clay loam over red clay - **D2** with clay loam over pedaric red clay - **D4**.
		Gently undulating rises	L1D1	C	
JMm	0.1	Pediments	D2	D	
KAC	0.8	Lower slopes and flats	C1A2	D	Lower slopes, pediments and flats and pediments formed on outwash sediments and weathered rock. **KAC** Lower slopes and flats with slight scalding (up to 5% affected). Slopes to 5%. **KAG** Gently sloping pediments with up to 20% gullied land, over 50% scalded. Highly saline with bare ground in places. Slopes are 1-3%, relief is less than 9m. **KAH** Lower slopes and flats with moderate gullying (20% affected) and scalding (5% affected). Slopes to 5%. Main soils: gradational sandy loam - **C1** and shallow calcareous loam - **A2**.
KAG	4.3	Gently sloping pediment	C1A2	D	
KAH	0.8	Lower slopes and flats	C1A2	D	
KEuu	8.0	Plain	E2D4	D	Level plain with severe gullying and scalding affecting more than 20% and 50% of land respectively. Main soils: red cracking clay **E2** and clay loam over pedaric red clay - **D4**, with loam over poorly structured red clay - **D3**. Non-productive.
KLG	2.2	Pediment	A5	D	Gently undulating pediments formed on highly calcified alluvium and weathered rock. 10-20% of land is gullied and less than 5% scalded. Slopes are 1-3%, relief is less than 9m. Main soils: rubbly calcareous loam on clay - **A5**, with shallow calcareous loam - **A2**, gradational loam on rock - **C2** and shallow calcareous loam on calcrete - **B2**.
KMU	10.0	Plains	A5D4	D	Plains formed on alluvium with deep calcareous and pedaric

					soils. Scalding affects 5-10% (with patches of over 50%), Subsoils are moderately saline. Main soils: rubbly calcareous loam on clay - A5 and clay loam over pedaric red clay - D4.
KRA	25.5	Plains	E2D2	D	Pediments and plains formed on clayey alluvium with clayey to clay loamy gradational or uniform textured soils. **KRA** Plains with slopes of less than 1% **KRB** Gently sloping plains with slopes of 1-3%. **KRU** Plains with slopes of less than 1% and 5-10% scalding. **KRv** Gently sloping plains with slopes of 1-3%. 5-10% is gullied, over 50% is scalded. Subsoils have moderate salinity. **KRW** Undulating fans with slopes of 2-5%. 5% is gullied, 5-10% is scalded and soils are moderately saline. Main soils: red cracking clay - **E2** and clay loam over red clay - **D2**, with clay loam over pedaric red clay - **D4**.
KRB	1.1	Gently sloping plains	E2D2	D	
KRU	6.2	Plains	E2D2	D	
KRv	12.9	Gently sloping plains	E2D2	D	
KRW	0.5	Undulating fans	E2D2	D	
KVA	0.4	Plains	A5A3	D	Pediments, plains and creek flats formed on calcareous outwash sediments derived from basement rock. Most soils are calcareous throughout. **KVA** Level plains. **KVl** Gently sloping plains with slopes of 1-3%. 5-10% is gullied, 5-10% is scalded and subsoils are moderately saline. **KVo** Creek flats. 5-10% is gullied, 10-50% is scalded. Main soils: gradational calcareous clay loam - **A6** with rubbly calcareous loam on clay - **A5** and deep moderately calcareous loam - **A3**.
KVl	4.7	Gently sloping plains	A6	D	
KVo	1.3	Creek flats	A6	D	
XKQ	2.8	Watercourse	M1D4	D	**XKQ** Willochra Creek watercourse, scalded and eroded. Main soils are deep alluvial sandy loam - **M1** and loam over pedaric red clay - **D4**, with stony alluvial soil - **M3**. **XKS** Drainage depression with a range of alluvial soils. Main soils: deep alluvial sandy loam - **M1**, stony alluvial soil -**M3** and loam over pedaric red clay - **D4**, with gradational clay loam - **C3**.
XKS	0.6	Drainage depression	M1M3 D4	D	
XOG	12.3	Flood plain	M2A6 C3	D	Flood plain formed on alluvium, swampy and marginally saline, with 10-50% scalding. Soils are clayey. Main soils: deep friable gradational clay - **M2**, gradational calcareous clay loam - **A6** and gradational clay loam - **C3**, with clay loam over pedaric red clay - **D4** and red cracking clay - **E2**.

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:

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 loam (Regolithic, Calcic Calcarosol)
Calcareous sandy loam to clay loam grading to a moderately calcareous red to brown sandy clay loam to clay, over alluvium.

A5 Rubbly calcareous loam on clay (Regolithic, Supracalcic / Lithocalcic Calcarosol)
Calcareous sandy loam to clay loam grading to a very highly calcareous rubbly sandy clay loam to light clay, over a clayey substrate deeper than 60 cm, but within 120 cm.

A6 Gradational calcareous clay loam (Pedal, Hypercalcic / Supracalcic Calcarosol)
Calcareous loam to clay loam grading to a well structured very highly calcareous (sometimes rubbly) clay, over a red clayey substrate within 120 cm.

B2 Shallow calcareous loam on calcrete (Petrocalcic, Calcic / Lithocalcic Calcarosol)
Stony calcareous sandy loam to loam, often with a very highly calcareous more clayey subsoil, over sheet calcrete within 50 cm. This grades to rubbly carbonate over weathering basement rock within 150 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 to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to weathering rock within 100 cm.

C3 Gradational 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.

D2 Hard loam over red clay (Calcic / Hypercalcic, Red Chromosol)
Hard setting sandy loam to clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth, grading to alluvium.

D3 Loam over poorly structured red clay (Calcic, Red Sodosol)
Medium thickness hard loam to clay loam with up to 50% quartzite stones over a coarsely prismatic dispersive red clay, calcareous with depth over stony and clayey alluvium.

D4 Loam over red friable clay (Calcic, Pedaric, Red Sodosol)
Thin to medium thickness fine sandy loam to loam over a finely structured very friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.

D7 Loam over red clay on rock (Hypercalcic / Calcic, Red Sodosol)
Medium thickness hard gravelly loam to clay loam over a coarsely structured dispersive red clay, calcareous with depth, grading to weathering basement rock within 100 cm.

E2 Red cracking clay (Epicalcareous, Epipedal, Red Vertosol)
Well structured (often self-mulching) clay grading to a coarser structured red calcareous medium to heavy clay continuing below 100 cm, often with gypsum segregations.

L1 Shallow stony loam (Calcareous / Basic, Paralithic, Leptic Tenosol)
Shallow stony loam to clay loam, often calcareous with depth, overlying weathering fine grained rock shallower than 50 cm.

M1 Deep alluvial sandy loam (Calcareous, Regolithic, Brown-Orthic Tenosol)
Very thick brown loamy sand to sandy loam, usually calcareous with depth, continuing below 100 cm.

M2 Deep friable gradational clay loam (Calcic, Red / Brown Dermosol)
Friable loam to light clay grading to a well structured red or brown dark clay, calcareous with depth, over alluvium.

M3 Stony alluvial soil (Basic, Fluvic, Clastic Rudosol OR Basic, Regolithic, Red-Orthic Tenosol)
Thick to very thick sandy loam with more than 50% quartzite stones overlying boulder beds.

RR Rock outcrop.

Further information: DEWNR Soil and Land Program