

# MUK Murkaby Land System

- Area:** 143.4 km<sup>2</sup>
- Landscape:** Floodplain and flood-out area of the Newikie Creek in the Murkaby area
- Annual rainfall:** 205 – 235 mm average
- Geology:** Holocene alluvium associated with modern streams and creeks. Older alluvium forms lateral terraces and floodplain deposits. Calcreted sediments of Pleistocene age alluvium also occur, especially in downstream locations away from the ranges.
- Main soils:**
- D4** (32%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
  - A3** (28%) Deep moderately calcareous loam (Calcic Calcarosol)
  - A6** (19%) Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)
- Minor soils:**
- A4** (8%) Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)
  - M4** (7%) Deep hard gradational sandy loam (Hard Brown-Dark Kandosol- Dermosol)
- Summary:** The Murkaby Land System contains the floodplain and flood-out area of the Newikie Creek in the Murkaby area. Soils are mostly deep calcareous soils and red pedaric, sodic texture contrast soils and are often severely scalded. Calcareous rises occur in places.

## Soil Landscape Unit summary: Murkaby Land System (MUK)

SLU	% of area	Component	Main soils	Prop#	Notes
EEB	2.8	Rise	A2A4	D	Gently undulating rises with mostly gradational calcareous soils, containing carbonate concretions or hard calcrete fragments. Slopes are 1-3%, relief is less than 30m.  Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Deep (rubbly) calcareous sandy loam</u> - <b>A4</b> .
ILB	0.1	Gently undulating flat	A6	D	Gently undulating flats with soils formed on unconsolidated clay sediments (eg. Blanchetown Clay Formation) or highly weathered rock. Soils have loamy-clay loamy surfaces, and are gradational calcareous soils (Calcarosols). Most are highly calcareous with clay subsoils and over 10% are stony or shallow over calcrete. Slopes are 1-3%, relief is less than 30m.  Main soils: <u>Gradational calcareous clay loam</u> - <b>A6</b> .
IxB	0.6	Gently undulating	A5A4	V	Rises and flats with soils formed on unconsolidated clay sediments (eg. Blanchetown Clay Formation) or highly weathered rock. Soils have non-sandy surfaces, and are gradational calcareous soils (Calcarosols). Over 50% gradational calcareous soils with clay subsoil on deeply weathered materials; with or without ironstone gravel and over 20% texture contrast soils.  <b>IxB</b> Gently undulating rises and flats. <b>IxU</b> Gently undulating rises and flats, 10-50% scalded.  Main soils: <b>Rises:</b> <u>Rubbly calcareous loam on clay</u> - <b>A5</b> and <u>Deep (rubbly) calcareous sandy loam</u> - <b>A4</b> . <b>Flats:</b> <u>Clay loam over pedaric red clay</u> - <b>D4</b> .
		Flat	D4	C	
IxU	0.3	Gently undulating	A5A4	V	
		Flat	D4	C	



JLU	5.6	Flat	D4	D	Flats with more than 20% pedaric, texture contrast (loam over crumbly red clay) soils, but < 20% calcareous gradational soils. <b>JLU</b> Flats. Moderately scalded (10-50%). Subsoils mod saline. <b>JLp</b> Flats. Moderately gullied (stable banks) and scalded (10-50%). Main soils: <u>Clay loam over pedaric red clay - D4</u> .
JLp	1.7	Flat	D4	D	
JNE	0.1	Depression	D4	D	Drainage line with stable banks Pediments with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly. Main soils: <u>Loam over pedaric red clay - D4</u> .
JPU	3.9	Flat	D4	D	Pediments and plains with texture contrast soils formed on outwash sediments derived from basement rocks. Calcareous in some part of the profile. More than 20% of soils are pedaric (fine crumbly structure in subsoils). <b>JPU</b> Flats, 10-50% scalded. <b>JPV</b> Flats and gently sloping pediments. Moderately scalded (5-10%). Slopes are 1-3%, relief is less than 9m. <b>JPo</b> Flats. Moderately gullied (10-20%) and scalded (10-50%). <b>JPp</b> Flats and gently undulating plains. Severely scalded (>50%). Main soils: <b>Flats:</b> <u>Loam over pedaric red clay - D4</u> and <u>Gradational calcareous clay loam - A6</u> . <b>Undulating plains:</b> <u>Gradational calcareous clay loam - A6</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u> .
JPV	1.1	Flat	D4	V	
JPo	3.2	Flat	D4A6	D	
JPp	43.5	Flat	D4	V	
KFA	1.3	Gently undulating	A6A4	V	Gently undulating pediments and flats with calcareous gradational soils and > 20% red pedaric texture contrast soils. Slopes < 1%. Main soils: <b>Undulating plains:</b> <u>Gradational calcareous clay loam - A6</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u> . <b>Flats:</b> <u>Loam over pedaric red clay - D4</u> .
		Flat	D4	C	
KKA	3.6	Depression	A6	D	Flats and depressions formed on outwash sediments with mostly gradational calcareous soils (Calcarosols) and more than 10% of associated soils have clayey surfaces. <b>KKA</b> Depression. <b>KKE</b> Flat. Main soils: <b>Depressions:</b> <u>Gradational calcareous clay loam - A6</u> . <b>Flats:</b> <u>Deep moderately calcareous loam - A3</u> .
KKE	15.3	Flat	A3	D	
KLB	8.5	Gently undulating	A6A4	V	Pediments and flats with clay loamy calcareous soils. <b>KLB</b> Gently undulating pediment and flats. Slopes are 1-3%, relief is less than 9m. <b>KLV</b> Flats and gently undulating pediments with 0-5% gullying and 10-50% scalding. Slopes: 1-3%, relief: < 9m. Main soils: <b>Undulating pediments:</b> <u>Gradational calcareous clay loam - A6</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u> . <b>Flats:</b> <u>Loam over pedaric red clay - D4</u> , <u>Deep (rubbly) calcareous sandy loam -A4</u> and <u>Rubbly calcareous loam on clay - A5</u> .
		Flat	D4	C	
KLV	0.2	Flat	A4A5	V	
		Gently undulating	A6A4	C	
KVB	1.2	Flat	A3A4	D	Gently sloping fans formed on calcareous outwash sediments derived from basement rock. More than 90% of soils are calcareous throughout (Calcarosols). <b>KVB</b> Gently undulating fans with shallow calcareous loam over calc-siltstone or other calcareous rock. Slopes: 1-3%, relief: <9m.
KVE	1.3	Depression	A3	D	



					<b>KVE</b> Flats, moderately scalded (10-50%) Main soils: <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u> .
<b>KgE</b>	0.5	Flat	A3M3	D	Flats and undulating plains with over 50% gradational calcareous soils of which most have more than 20% gravel or stone (non-pedogenic). <b>KgE</b> Flats <b>KgV</b> Flats and gently undulating plains. Moderately scalded (10-50%). Slopes are 1-3%, relief is less than 9m. Main soils: <b>Flats:</b> <u>Deep moderately calcareous loamy sand - A3</u> and <u>Deep gravelly soil -M3</u> . <b>Undulating plains:</b> <u>Deep (rubbly) calcareous sandy loam -A4</u> and <u>Gradational calcareous clay loam - A6</u> .
<b>KgV</b>	5.1	Flat Gently undulating	A3M3 A4A6	E E	

# 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/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2)

Gradational calcareous sandy loam over clay loam on weathered rock.

#### **OR** Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)

Shallow calcareous sandy loam on rock.

#### **A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)

Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO<sub>3</sub> buildup in the subsoil (<20% CO<sub>3</sub> in subsoil). Pediment type Calcarosols.

#### **A4** Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)

Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO<sub>3</sub> buildup in the subsoil. Often rubbly. Soil usually >120 cm in depth

#### **A5** Rubbly calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)

Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubbly. Clayey substrate occurs at >60 cm and <120 cm.

#### **A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)

Calcareous loams to clay loams grading into brown-red clay. Often rubbly.

#### **D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)

Thin to medium thickness fine sandy loam to loam over finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.

#### **M3** Deep gravelly soil (Gravelly Kandosol-Tenosol)

Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.

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

