

# RSL Rosslyn Land System

Undulating to rolling low hills between Melrose and Bangor

**Area:** 53.7 km<sup>2</sup>

**Annual rainfall** 450 - 575 mm average

**Geology:** Siltstones and sandstones of the Willochra Formation with minor fine grained alluvial deposits on lower slopes and valleys

**Topography:** Undulating to rolling semi arable low hills with limited areas of steeper non arable hills. Slopes are generally in the range 10 - 20%, but there is some more gently sloping land with gradients as low as 5% and some steeper slopes in the north to 50%. Rock outcrop is common, with linear bands of quartzite a feature of the area, most of which has a distinctive striped appearance from the air. Watercourses are well defined, usually in narrow, unmappable depressions. There are however some flats up to 400 m wide. Erosion in watercourses is common and there is minor salinity. Drainage from the system is both to the east and west. West flowing streams join to form Stony Creek which flows into Baroota Creek. There are several east flowing streams which all eventually flow into Rotten Creek. Yellowman Creek is the main tributary.

**Elevation:** 330 m in the west at the Stony Creek drainage exit, to 500 m in the north

**Relief:** Relief varies from 30 m on the more gently sloping land to 80 m

**Soils:** Most soils are moderately deep over basement rock. These have sandy loam to loam surfaces, and usually red, brown or black clayey subsoils. However, some are shallow, directly over rock or hard carbonate pan. Deeper brown or black texture contrast or gradational soils occur on lower slopes and flats.

**Main soils:** *Soils formed over basement rock on rises*  
**K2** Loam over red clay on rock  
**K3** Sandy loam over dispersive red clay on rock  
**L1** Shallow stony loam

**Minor soils:** *Soils formed over basement rock on rises*  
**D1** Loam over red clay on calc-rock  
**K4** Sandy loam over brown clay on rock  
**D7** Hard sandy loam over poorly structured red clay on calc-rock  
**B4/C2** Red gradational loam on calc-rock  
*Soils formed over alluvium or deeply weathered rock on lower slopes*  
**F2/F1** Loam over (dispersive) brown mottled clay  
**M2** Dark gradational loam

**Main features:** The Rosslyn Land System is moderately steep country characterized by mainly moderately deep loamy textured soils with clayey subsoils. These soils are generally fertile, but are commonly poorly structured, adversely affecting water infiltration and plant establishment. Some slopes are arable, but the rises have a high risk of erosion and the lower slopes are prone to waterlogging and are sometimes mildly saline.



**Soil Landscape Unit summary:** 9 Soil Landscape Units (SLUs) mapped in the Rosslyn Land System

SLU	% of area	Main features #
AGC AGD	33.1 0.7	<p>Rocky hills formed on freshly weathered fine grained rocks.</p> <p><b>AGC</b> Low hills with slopes of 10-30% and relief to 80 m. There is 10-20% surface stone and less than 5% outcrop.</p> <p><b>AGD</b> Steep slopes to 50 m high with slopes of 30-60%. There is more than 20% surface stone and outcropping rock.</p> <p>Main soils: <u>loam over red clay on rock</u> - <b>K2</b> (E), with <u>shallow stony loam</u> - <b>L1</b> (C) and <u>sandy loam over brown clay on rock</u> - <b>K4</b> (L) on slopes, and <u>loam over dispersive brown mottled clay</u> - <b>F2</b> (L) and <u>dark gradational loam</u> - <b>M2</b> (M) on lower slopes. The land is too steep and rocky for cropping but has high pasture production potential with inherently fertile moderately deep soils, although accessibility is limited on the steeper slopes.</p>
AHC	5.5	<p>North-south trending ridges up to 70 m high with slopes of 15-40% formed on fine grained rocks interbedded with quartzites. There are 10% quartzite reefs and 10-20% surface quartzite and siltstone.</p> <p>Main soils: <u>shallow stony loam</u> - <b>L1</b> (E), with <u>sandy loam over dispersive red clay on rock</u> - <b>K3</b> (C), and soils as for <b>AGC</b>. The land is non arable due to moderately steep slopes, rocky outcrops and shallow stony soils which also limit pasture productivity. Pasture improvement is hampered by limited accessibility on rocky slopes.</p>
BAD	6.7	<p>Moderately inclined slopes (7-20%) with relief to 40 m formed on freshly weathered fine grained rocks. There is sporadic rock outcrop, between 5% and 10% overall. There is 10-20% surface quartzite and siltstone. ]</p> <p>Main soils: <u>loam over red clay on rock</u> - <b>K2</b> (E), with <u>shallow stony loam</u> - <b>L1</b> (L), <u>dark gradational loam</u> - <b>M2</b> (L), <u>loam over dispersive brown mottled clay</u> - <b>F2</b> (L) on lower slopes, <u>sandy loam over brown clay on rock</u> - <b>K4</b> (L) and <u>red gradational loam on rock</u> - <b>B4/C2</b> (M). The land is generally too steep for safe cropping, although the gentler slopes are suitable. The soils are inherently fertile and relatively deep with the only limitations being due to hard setting surfaces and tight subsoil clays in places.</p>
BBC BBD	6.7 2.6	<p>Rises formed on quartzitic and kaolinized fine grained rocks. There is 2-10% surface stone and no outcrop.</p> <p><b>BBC</b> Undulating rises with slopes of 3-12% and relief to 30 m. There is minor salinity on lower slopes.</p> <p><b>BBD</b> Moderately inclined slopes of 10-20% and relief to 30 m. There is minor salinity on lower slopes.</p> <p>Main soils: <u>sandy loam over dispersive red clay on rock</u> - <b>K3</b> (E) and <u>sandy loam over poorly structured red clay on calc-rock</u> - <b>D7</b> (L) on quartzite, with <u>loam over red clay on rock</u> - <b>K2</b> (E) on fresh weathering or kaolinitic siltstone, and <u>loam over dispersive brown mottled clay</u> - <b>F2</b> (L) on lower slope alluvium. The land is semi arable due to the generally moderate slopes. The most common soils are poorly structured, highly erodible and prone to waterlogging, difficulty of working and patchy emergence.</p>
BnD	37.1	<p>Parallel ridges with slopes of 10-20% and relief to 40 m formed on interbedded fine and coarse grained rocks and quartzites. There is up to 10% outcropping quartzite reefs and up to 20% surface quartzite and sandstone.</p> <p>Main soils: <u>sandy loam over red dispersive clay on rock</u> - <b>K3</b> (E) on quartzites and <u>loam over red clay on rock / calc-rock</u> - <b>K2/D1</b> (E) on fresh weathering or calcareous siltstones, with <u>shallow stony loam</u> - <b>L1</b> (C) on rocky slopes. This land is semi arable, cropping being restricted by moderate slopes and rocky reefs. The arable land is nevertheless highly erodible (hard sandy poorly structured soils) and prone to waterlogging and restricted workability.</p>
DPC	4.7	<p>Rises with slopes of 4-10% and relief to 30 m formed on kaolinized fine grained rocks.</p> <p>Main soils: <u>hard sandy loam over dispersive red clay on calc-rock</u> - <b>D7</b> (E) and <u>loam over red clay on calc-rock</u> - <b>D1</b> (E) formed in calcareous and kaolinitic rocks, with <u>red gradational loam on rock</u> - <b>C2</b> (L). The land is arable with moderately deep soils. The main limitations (apart from erosion potential) are reduced fertility (a consequence of the kaolinitic parent rocks), poor surface and subsoil structure leading to waterlogging, restricted workability and patchy emergence, and some salinity on lower slopes.</p>



JQe	2.9	Lower slopes and flats with slopes of up to 4% formed on fine grained alluvium. Main soil: <u>loam over (dispersive) brown mottled clay - F2/F1</u> (D). Accessibility on these flats is difficult due to watercourses and winter waterlogging. Poor soil structure and saline seepage are additional limitations restricting cropping potential. The land is nevertheless valuable for grazing as it provides late season feed.
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# PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

- (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:

#### **B4/C2** Red gradational loam on calc-rock (Hypercalcic / Petrocalcic, Red Dermosol)

Medium thickness loam to clay loam grading to a well structured red clay over hard carbonate pan within 50 cm or weathering rock within 100 cm.

#### **D1** Loam over red clay on calc- rock (Hypercalcic, Red Chromosol)

Medium thickness hard stony loam to clay loam abruptly overlying a well structured red clay, calcareous with depth, grading to fresh weathering or kaolinitic siltstone between 50 cm and 100 cm.

#### **D7** Hard sandy loam over poorly structured red clay on calc-rock (Calcic / Hypercalcic, Red Sodosol / Chromosol)

Medium thickness sandy loam to clay loam abruptly overlying a coarsely structured, often dispersive red clay, calcareous with depth, grading to highly weathered quartzite or quartzitic shale (kaolinized in 60% of profiles).

#### **F2/F1** Loam over (dispersive) brown mottled clay (Calcic / Eutrophic, Brown Sodosol / Chromosol)

Medium to thick sandy loam to clay loam with a bleached and quartz gravelly A2 horizon, over a brown, grey or red mottled coarsely structured clay, usually calcareous with depth continuing below 100 cm.

#### **K2** Loam over red clay on rock (Eutrophic, Red Chromosol)

Medium thickness hard stony loam to clay loam abruptly overlying a well structured red clay grading to fresh weathering or kaolinitic siltstone between 50 cm and 100 cm.

#### **K3** Sandy loam over dispersive red clay on rock (Eutrophic, Red Sodosol)

Medium thickness quartzite gravelly sandy loam overlying a red coarsely structured sandy clay to clay grading to hard quartzite.

#### **K4** Sandy loam over brown clay on rock (Eutrophic, Brown Chromosol)

Medium thickness stony sandy loam to sandy clay loam overlying a well structured brown clay grading to weathering sandstone within 100 cm.

#### **L1** Shallow stony loam (Paralithic / Lithic, Leptic Rudosol / Tenosol)

Medium to thick stony sandy loam to sandy clay loam overlying weathering or hard rock within 50 cm.

#### **M2** Dark gradational loam (Eutrophic, Black / Red Dermosol)

Thick dark clay loam grading to a well structured black to red clay overlying deeply weathered rock or colluvial wash.

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

