Land systems and reports

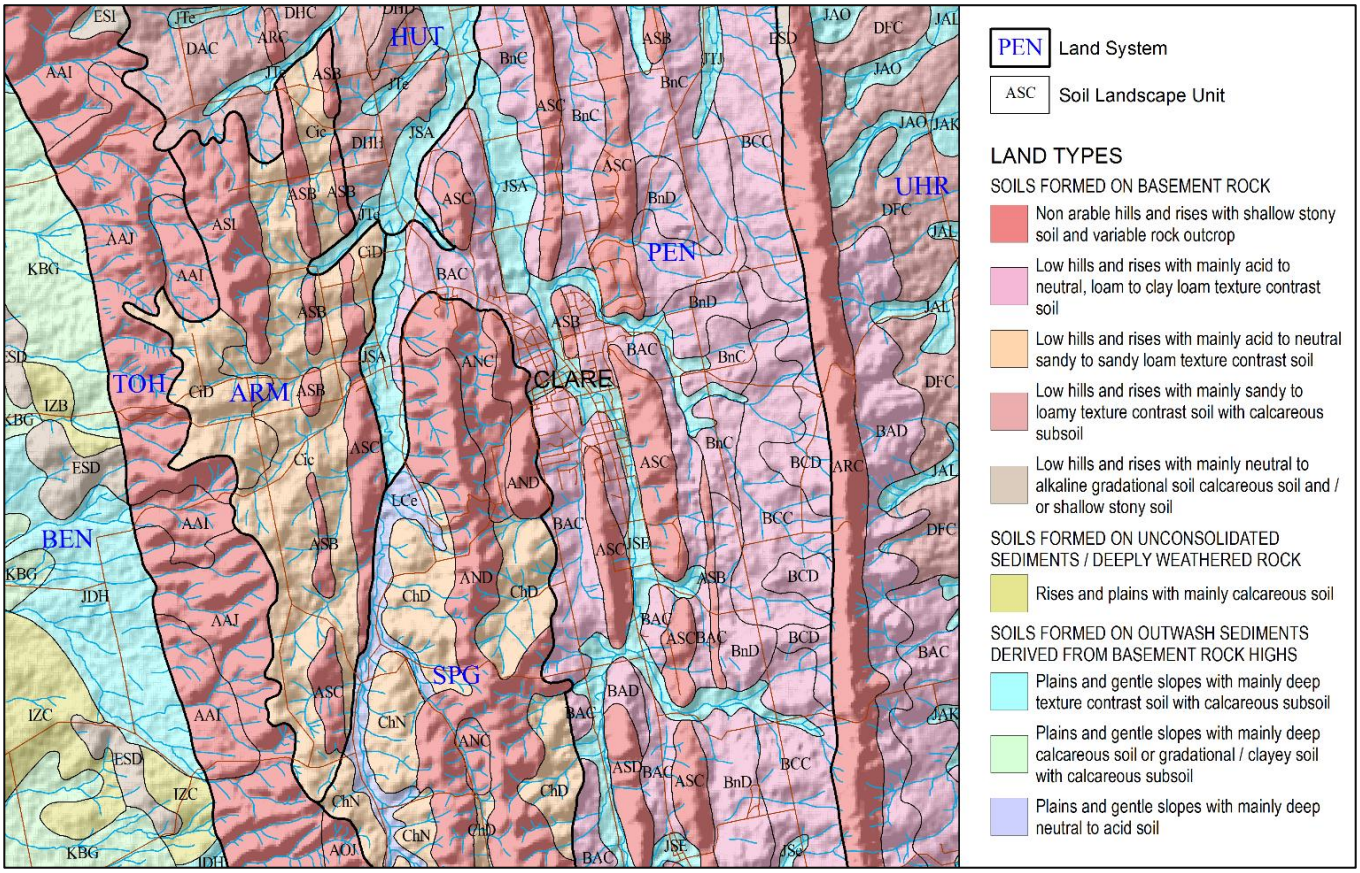
Land System reports provide comprehensive descriptive information on soil and landscapes for localised areas

Land systems are moderately-sized landscape areas (~20–2000 km^2) that contain recurring patterns of geology, topography, soils and vegetation. *Land systems* provide a limited, recognisable geographical extent for reporting summary information on local soils and landscapes. Across southern South Australia, over 850 *Land systems* have been described.

Land systems occur within a hierarchy of soil and land mapping. From broadest to finest detail, this hierarchy is: *Biophysical regions*, *Biophysical subregions*, *Land zones* (Kangaroo Island only), *Land systems*, and *Soil landscape map units*. *Land system* labels reflect the location (e.g. PEN=Penwortham), while constituent *Soil landscape units* (*SLUs*) correspond to locally recognisable geological and terrain features. In each local area, the combination of *Land system* code (e.g. 'PEN') and *SLU* code (e.g. 'ASC') join together to provide unique *Soil landscape map unit* codes (e.g. 'PENASC').

Land system reports typically include overview information about the geographical location, geology, topography, soils, plus summaries of constituent *Soil landscape units*, and descriptions of relevant soils. *Land system reports* are accessible (refer overleaf) from the interactive online mapping sites:

- **NatureMaps** – *Public*: http://www.naturemaps.sa.gov.au/
- **EnvMaps** – *SA Government only:* http://maps.env.sa.gov.au/



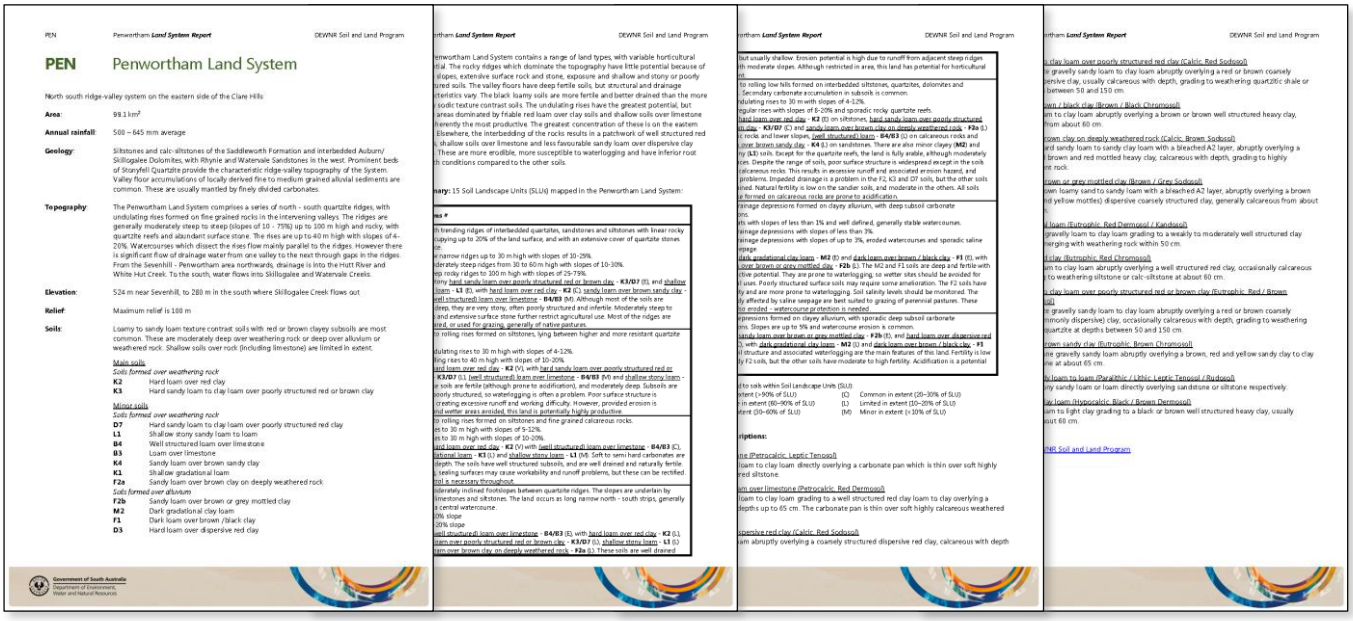
Land systems and Soil landscape units in the Clare Valley of South Australia. Geologically related SLUs are grouped into Land types (Land types are denoted by the first character in the SLU code). These provide a map legend summary of the range of soils and terrain found within each Soil landscape unit. A Land system and Soil landscape unit together define a 'Soil landscape map unit'.

Accessing *Land system reports*

The following step-by-step guide will help you access the *Land system reports*.

1. Open NatureMaps *(Public)* START using Nature Maps or EnvMaps *(SA Govt only)* START using EnvMaps 3.0
2. Navigate to your area of interest and display a range of data layers including soils.
3. Open the **Soils** folder in the **Layers** list.
4. Turn on the Land Systems layer by clicking in the box ☑
   You will see the *Land systems* displayed on the map.
5. Zoom in to your study area and click on a *Land system* of interest:
   Note that your selected *Land system* will be highlighted and a pop up window will appear.

6. In the pop-up window, click on Link to Land System Report to open the associated *Land system report* (PDF), which can be viewed or saved.



PEN Penwortham *Land System Report* DEWNR Soil and Land Program

PEN Penwortham Land System

North south ridge-valley system on the eastern side of the Clare Hills

Area: 99.1 km²

Annual rainfall: 500 – 645 mm average

Geology: Siltstones and calc-siltstones of the Saddleworth Formation and interbedded Auburn/ Skillogalee Dolomites, with Rhynie and Watervale Sandstones in the west. Prominent beds of Stonyfell Quartzite provide the characteristic ridge-valley topography of the System. Valley floor accumulations of locally derived fine to medium grained alluvial sediments are common. These are usually mantled by finely divided carbonates.

Topography: The Penwortham Land System comprises a series of north - south quartzite ridges, with undulating rises formed on fine grained rocks in the intervening valleys. The ridges are generally moderately steep to steep (slopes of 10 - 75%) up to 100 m high and rocky, with quartzite reefs and abundant surface stone. The rises are up to 40 m high with slopes of 4-20%. Watercourses which dissect the rises flow mainly parallel to the ridges. However there is significant flow of drainage water from one valley to the next through gaps in the ridges. From the Sevenhill - Penwortham area northwards, drainage is into the Hutt River and White Hut Creek. To the south, water flows into Skillogalee and Watervale Creeks.

Elevation: 524 m near Sevenhill, to 280 m in the south where Skillogalee Creek flows out

Relief: Maximum relief is 188 m

Soils: Loamy to sandy loam texture contrast soils with red or brown clayey subsoils are most common. These are moderately deep over weathering rock or deep over alluvium or weathered rock. Shallow soils over rock (including limestone) are limited in extent.

Main soils
Soils formed over weathering rock
K2 Hard loam over red clay
K3 Hard sandy loam to clay loam over poorly structured red or brown clay

Minor soils
Soils formed over weathering rock
D7 Hard sandy loam to clay loam over poorly structured red clay
L1 Shallow stony sandy loam to loam
B4 Well structured loam over limestone
B3 Loam over limestone
K4 Sandy loam over brown sandy clay
K1 Shallow gradational loam
F2b Sandy loam over brown clay on deeply weathered rock
Soils formed over alluvium
F2b Sandy loam over brown or grey mottled clay
M2 Dark gradational clay loam
F1 Dark loam over brown /black clay
D3 Hard loam over dispersive red clay

Government of South Australia Department of Environment, Water and Natural Resources

Further information

- View data on NatureMaps (→ Soils)
- Read the metadata for this layer
- Describing and interpreting soil profiles
- Read more about Mapping soil and land
- Contact Mapland

Downloads:

- Spatial dataset
- Assessing Agricultural Lands (Maschmedt 2002)
- Soils of Southern SA book Part 1 and Part 2